THE RESOURCES AGENCY OF CALIFORNIA

Department of Water Resources

BULLETIN No. 98

NORTHEASTERN COUNTIES GROUND WATER INVESTIGATION

VOLUME II

PLATES

FEBRUARY 1963

EDMUND G. BROWN
Governor
State of California

WILLIAM E. WARNE
Administrator
The Resources Agency of California
and Director
Department of Water Resources

The Resources Agency of California

Department of Water Resources

BULLETIN No. 98

NORTHEASTERN COUNTIES GROUND WATER INVESTIGATION

VOLUME II

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ALTURAS BASIN
HUMBOLDT
MODOC
SHASTA
BIG VALLEY
FALL RIVER VALLEY
MADELINE PLAINS
WASHOE
LASSEN
HONEY LAKE VALLEY
SECRET VALLEY
HONEY LAKE
PERSHING
TEHAMA
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BUTTE
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NEVADA
STOREY
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YUBA
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NORTHERN BRANCH
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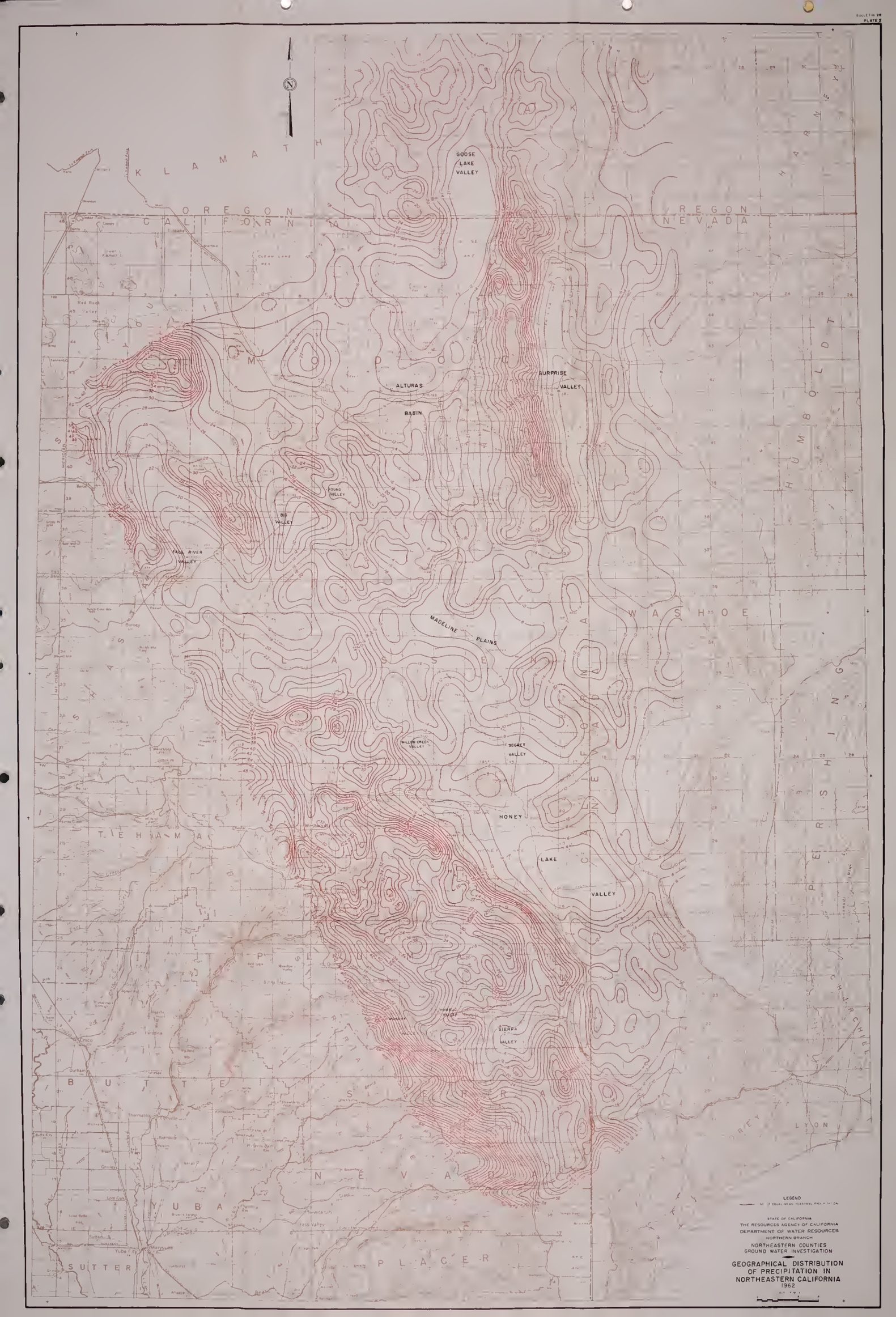
GROUND WATER INVESTIGATION
AREA OF INVESTIGATION
1962



LEGEND

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

GEOGRAPHICAL DISTRIBUTION OF PRECIPITATION IN NORTHEASTERN CALIFORNIA
1962

R.12E R.13E R14E R15E

OREGON CALIFORNIA LAKE MODOC CO CO

T48N T47N T46N T45N T44N

LAKE

GOOSE

Qpvb TQvb Qal Qf Qb Qps Qpvb Tvr Tmc Tmvb Tmvq Tmv Qsd Ql

GEOLOGIC UNITS

SEDIMENTARY ROCKS

CENOZOIC — QUATERNARY — Recent
- Qsd SAND DUNES
- Qs SAND AND SILT DEPOSITS
- Ql RECENT LAKE DEPOSITS
- Qls LANDSLIDES
- Qta TALUS
- Qmp MUCK AND PEAT DEPOSITS
- Qb BASIN DEPOSITS
- Qal INTERMEDIATE ALLUVIAL DEPOSITS
- Qf ALLUVIAL FANS
- Qt TERRACES
- Qps NEAR-SHORE DEPOSITS

CENOZOIC — QUATERNARY — Pleistocene
- Qpl PLEISTOCENE AND LAHONTAN LAKE DEPOSITS
- Qpa GLACIAL OUTWASH
- Qpm MORAINES

CENOZOIC — TERTIARY — Pliocene
- TQa ALTURAS FORMATION
- TQb BIEBER FORMATION
- Tpl PLIOCENE LAKE DEPOSITS

CENOZOIC — TERTIARY — Miocene, Pliocene
- Tmlc FORTY-NINE CAMP FORMATION

CENOZOIC — TERTIARY — Eocene, Oligocene, Miocene
- TEdc DEEP CREEK CONGLOMERATE

CENOZOIC — TERTIARY — Undivided
- Teg AURIFEROUS GRAVELS
- Tps GOLD RUN SANDSTONE
- Tfs FORT SAGE SANDSTONE

VOLCANIC ROCKS

CENOZOIC — QUATERNARY — Recent
- Qrb RECENT BASALT
- Qpvb PLEISTOCENE AND RECENT CINDER CONES

CENOZOIC — QUATERNARY — Pleistocene
- Qpvb PLEISTOCENE BASALT
- Qpvp PLEISTOCENE PYROCLASTIC ROCKS
- TQvb PLIO-PLEISTOCENE BASALT
- TQvp PLIO-PLEISTOCENE PYROCLASTIC ROCKS
- TQst WARM SPRINGS TUFF

CENOZOIC — TERTIARY — Pliocene
- Tpvb PLIOCENE BASALT
- Tpva PLIOCENE ANDESITE
- Tpvp PLIOCENE PYROCLASTIC ROCKS

CENOZOIC — TERTIARY — Miocene
- Tmv MIOCENE VOLCANIC ROCKS, UNDIVIDED
- Tmvb MIOCENE BASALT
- Tmva MIOCENE ANDESITE
- Tmvp MIOCENE PYROCLASTIC ROCKS
- Tmtc TURNER CREEK FORMATION
- Tmc CEDARVILLE SERIES

CENOZOIC — TERTIARY — Undivided
- Tvr RHYOLITE
- Tvb BIG VALLEY MOUNTAIN VOLCANIC SERIES
- Tsv SIERRAN VOLCANIC ROCKS, UNDIVIDED
- Tsvb SIERRAN BASALT
- Tsva SIERRAN ANDESITE
- Tsvp SIERRAN PYROCLASTIC ROCKS

BASEMENT COMPLEX

- MESOZOIC — JKgr GRANITIC ROCKS
- PALEOZOIC — pMm METAMORPHIC ROCKS

NOTE
COLOR IN LEGEND BOX INDICATES GEOLOGIC UNIT THAT APPEARS ON THIS SHEET.
FOR DESCRIPTION OF PHYSICAL AND WATER-BEARING PROPERTIES, REFER TO STRATIGRAPHIC COLUMN. (TABLE 9)

SYMBOLS

- GEOLOGIC CONTACT.
- U / O FAULT, DASHED WHERE APPROXIMATELY LOCATED. U DENOTES UPTHROWN SIDE; O DENOTES DOWNTHROWN SIDE
- CONCEALED FAULT
- A — A' LOCATION OF GEOLOGIC SECTION.

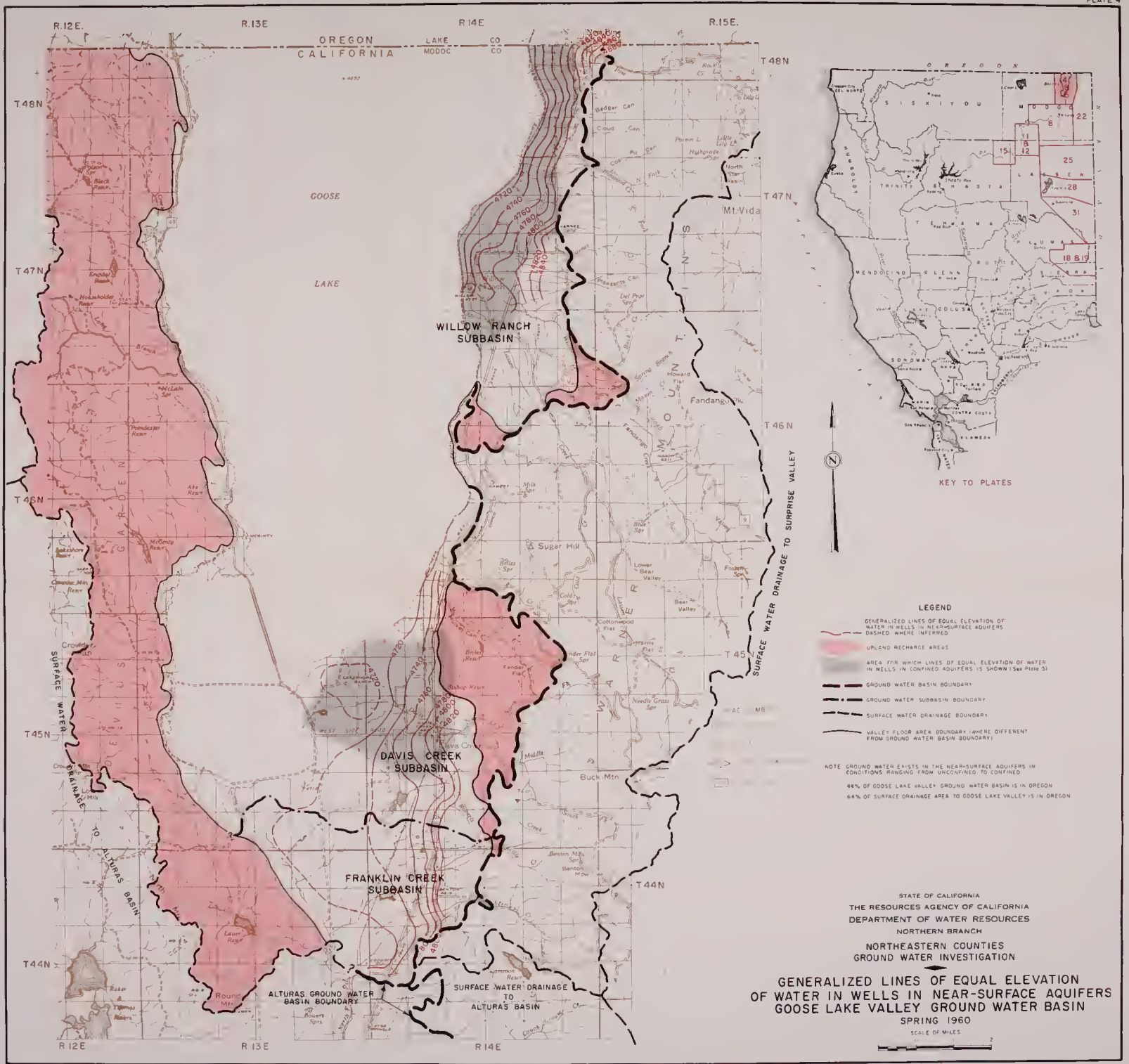
GEOLOGY BY CALIFORNIA DEPARTMENT OF WATER RESOURCES FROM ORIGINAL MAPPING AND BY MODIFICATION OF PREVIOUS MAPPING OF THE CALIFORNIA DIVISION OF MINES AND GEOLOGY

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH

NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

AREAL GEOLOGY
GOOSE LAKE VALLEY GROUND WATER BASIN
1962

SCALE OF MILES
0 1 2

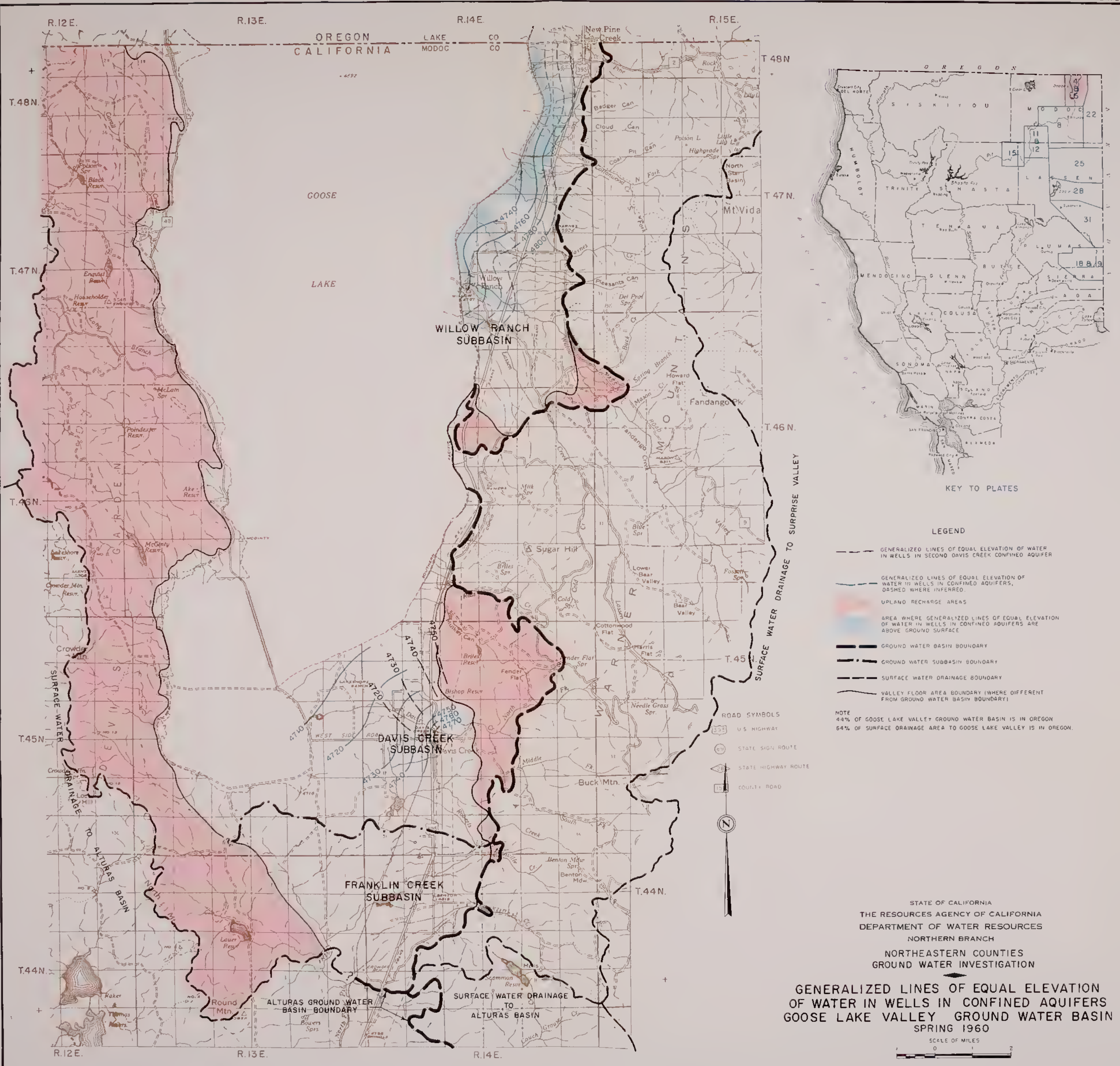


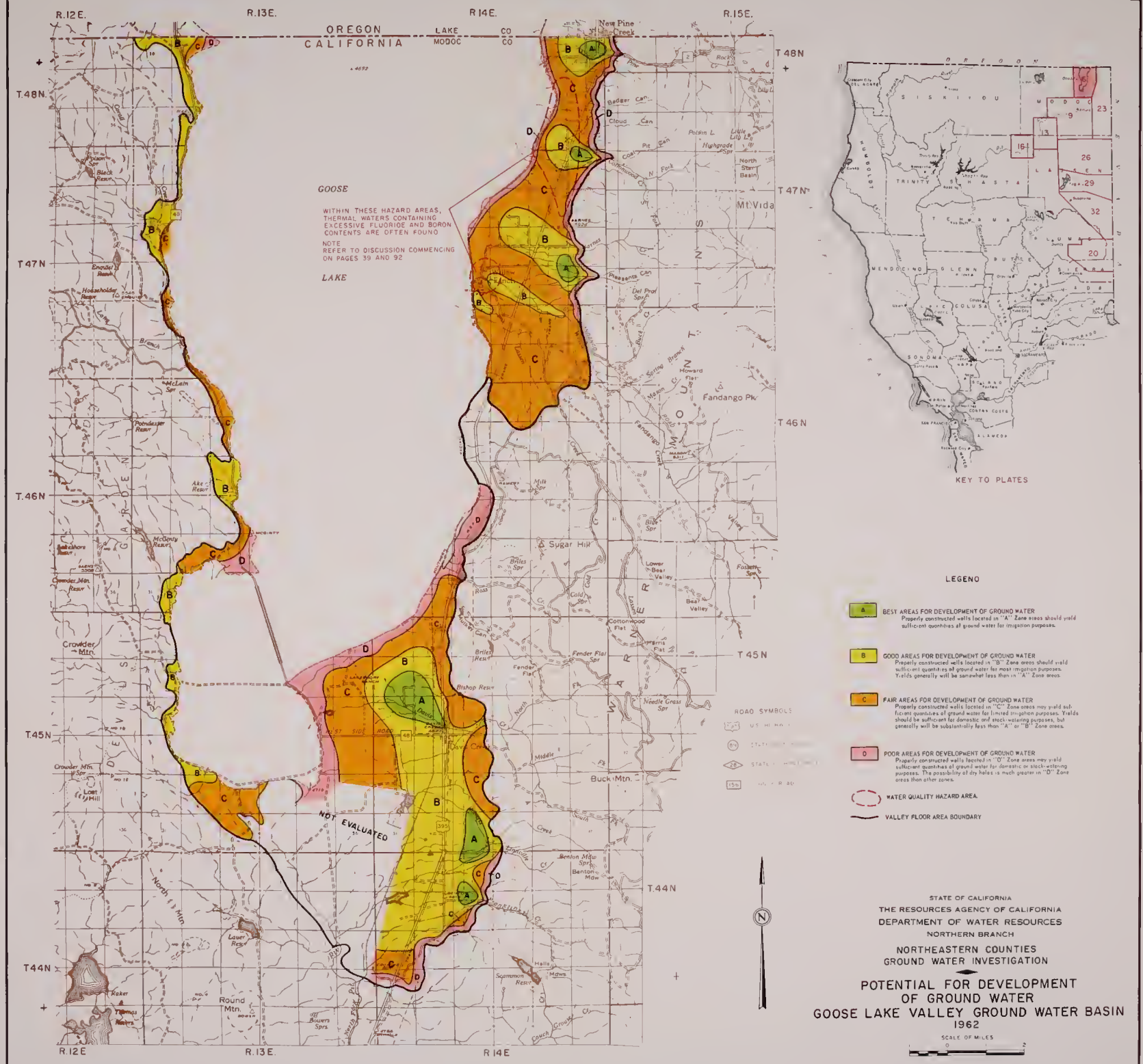
STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN NEAR-SURFACE AQUIFERS GOOSE LAKE VALLEY GROUND WATER BASIN

SPRING 1960

SCALE OF MILES

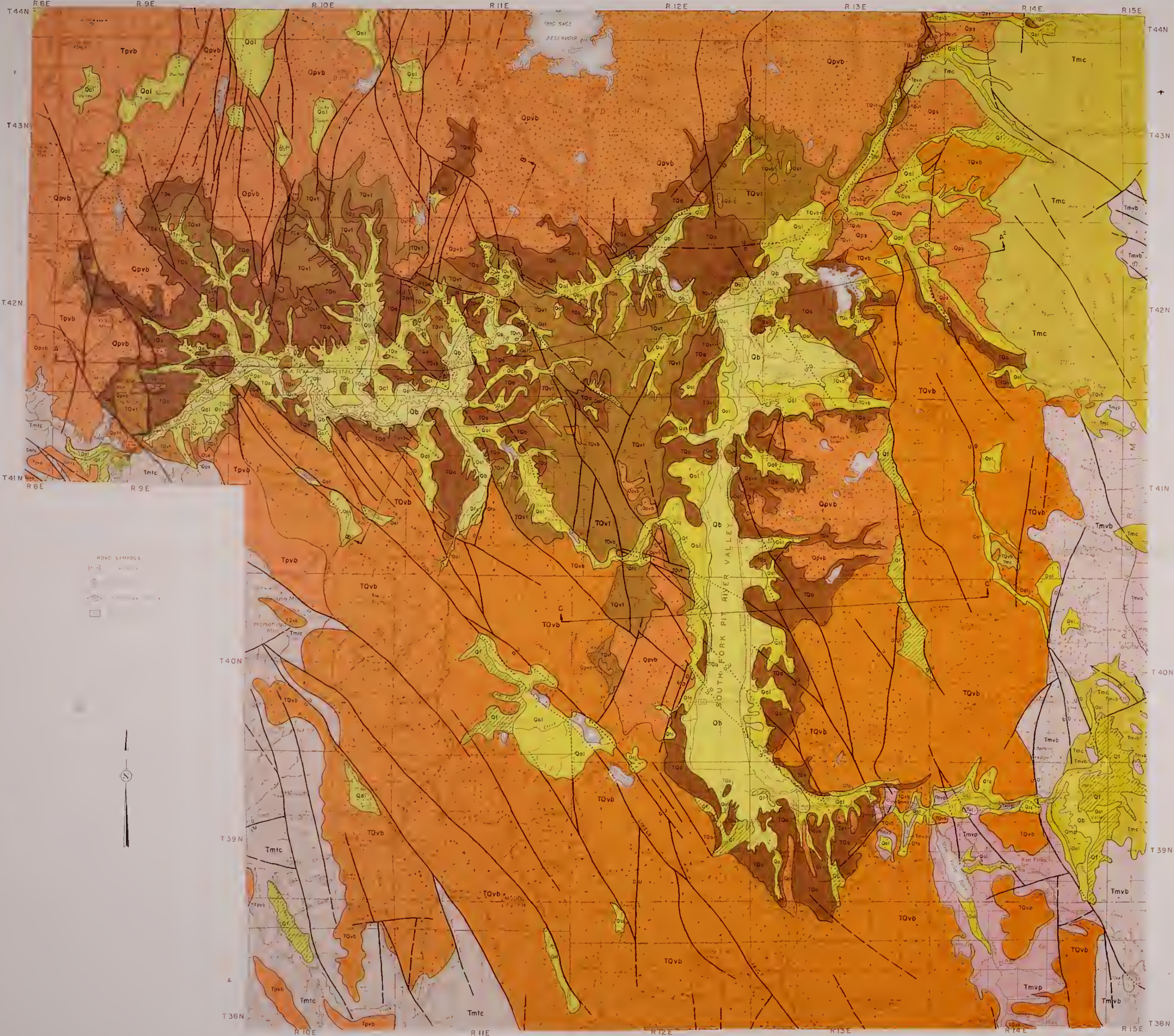

OREGON
CALIFORNIA
LAKE CO
MODOC CO
R.12E.
R.13E.
R.14E.
R.15E.
T.48N.
T.47N.
T.46N.
T.45N.
T.44N.
New Pine Creek
GOOSE
LAKE
WILLOW RANCH SUBBASIN
DAVIS CREEK SUBBASIN
FRANKLIN CREEK SUBBASIN
Willow Ranch
Mt Vida
Fandango Pk
Sugar Hill
Buck Mtn.
Round Mtn.
Crowder Mtn.
SURFACE WATER DRAINAGE TO SURPRISE VALLEY
SURFACE WATER DRAINAGE TO ALTURAS BASIN
ALTURAS GROUND WATER BASIN BOUNDARY
SURFACE WATER DRAINAGE TO ALTURAS BASIN
4720
4730
4740
4750
4760
4770
4780
4800
ROAD SYMBOLS
U.S. HIGHWAY
STATE SIGN ROUTE
STATE HIGHWAY ROUTE
COUNTY ROAD
KEY TO PLATES
LEGEND
GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN SECOND DAVIS CREEK CONFINED AQUIFER
GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN CONFINED AQUIFERS, DASHED WHERE INFERRED.
UPLAND RECHARGE AREAS
AREA WHERE GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN CONFINED AQUIFERS ARE ABOVE GROUND SURFACE
GROUND WATER BASIN BOUNDARY
GROUND WATER SUBBASIN BOUNDARY
SURFACE WATER DRAINAGE BOUNDARY
VALLEY FLOOR AREA BOUNDARY (WHERE DIFFERENT FROM GROUND WATER BASIN BOUNDARY)
NOTE
44% OF GOOSE LAKE VALLEY GROUND WATER BASIN IS IN OREGON
64% OF SURFACE DRAINAGE AREA TO GOOSE LAKE VALLEY IS IN OREGON.
STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION
GENERALIZED LINES OF EQUAL ELEVATION
OF WATER IN WELLS IN CONFINED AQUIFERS
GOOSE LAKE VALLEY GROUND WATER BASIN
SPRING 1960
SCALE OF MILES
1 0 1 2

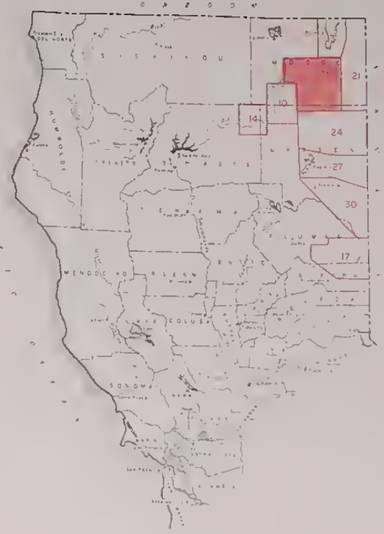


STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH

NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

POTENTIAL FOR DEVELOPMENT OF GROUND WATER GOOSE LAKE VALLEY GROUND WATER BASIN 1962





KEY TO PLATES

GEOLOGIC UNITS

SEDIMENTARY ROCKS

- Qrs — SAND DUNES
- Qs — SAND AND SILT DEPOSITS
- Ql — RECENT LAKE DEPOSITS
- Qls — LANDSLIDES
- Qtlu — TALUS
- Qmp — MUCK AND PEAT DEPOSITS
- Qb — BASIN DEPOSITS
- Qal — INTERMEDIATE ALLUVIAL DEPOSITS
- Qal — ALLUVIAL FANS
- Qt — TERRACES
- Qsd — NEAR-SHORE DEPOSITS
- Qpl — PLEISTOCENE AND LAHONTAN LAKE DEPOSITS
- Qgo — GLACIAL OUTWASH
- Qpw — MORAINES
- Tpa — ALTURAS FORMATION
- Tpd — DIGGER FORMATION
- Tpl — PLIOCENE LAKE DEPOSITS
- Tpfs — FORTY-NINE CAMP FORMATION
- Tdc — DEEP CREEK CONGLOMERATE
- Tcg — AURIFEROUS GRAVELS
- Tgs — GOLD RUN SANDSTONE
- Tes — EAGLE SAGE SANDSTONE

VOLCANIC ROCKS

- Qvb — RECENT BASALT
- Qpvc — PLEISTOCENE AND RECENT CINDER CONES
- Qpvb — PLEISTOCENE BASALT
- Qpvp — PLEISTOCENE PYROCLASTIC ROCKS
- TQvb — PLIO-PLEISTOCENE BASALT
- TQvp — PLIO-PLEISTOCENE PYROCLASTIC ROCKS
- TQvc — WARM SPRINGS TUFF
- Tpvb — PLIOCENE BASALT
- Tpva — PLIOCENE ANDESITE
- Tpvp — PLIOCENE PYROCLASTIC ROCKS
- Tmv — MIOCENE VOLCANIC ROCKS, UNDIVIDED
- Tmvb — MIOCENE BASALT
- Tmva — MIOCENE ANDESITE
- Tmvp — MIOCENE PYROCLASTIC ROCKS
- Tmc — TURNER CREEK FORMATION
- Tmd — CEDARVILLE SERIES
- Tgr — RHYOLITE
- Tvb — BIG VALLEY MOUNTAIN VOLCANIC SERIES
- Tsv — SIERRAN VOLCANIC ROCKS, UNDIVIDED
- Tsvb — SIERRAN BASALT
- Tsva — SIERRAN ANDESITE
- Tsvp — SIERRAN PYROCLASTIC ROCKS

BASEMENT COMPLEX

- MESOZOIC — gr — GRANITIC ROCKS
- PALEOZOIC — pzm — METAMORPHIC ROCKS

NOTE: COLOR IN LEGEND BOX INDICATES GEOLOGIC UNIT THAT APPEARS ON THIS PLATE. FOR DESCRIPTION OF PHYSICAL AND WATER-BEARING PROPERTIES, REFER TO STRATIGRAPHIC COLUMN (TABLE 1).

SYMBOLS

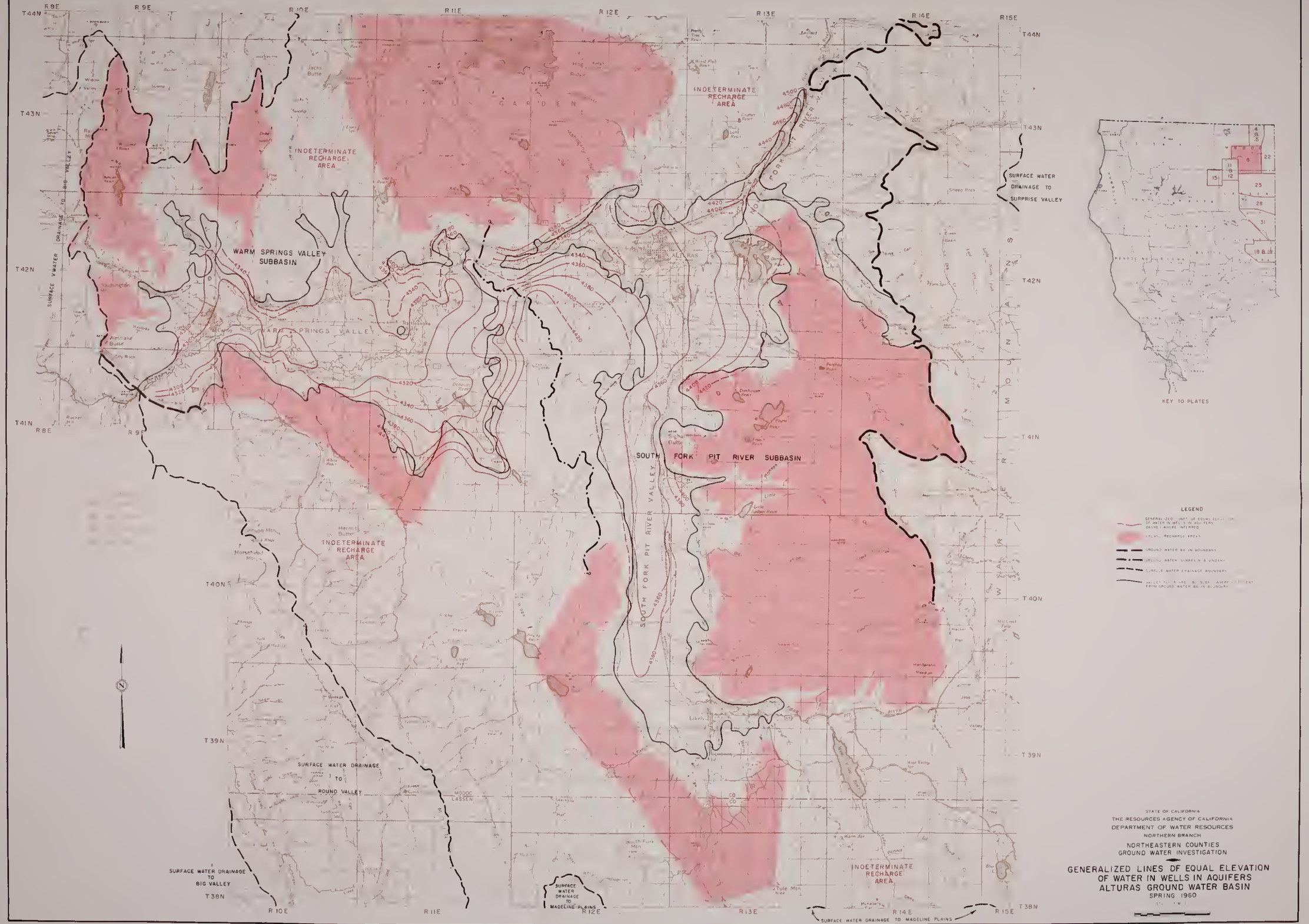
- GEOLOGIC CONTACT
- FAULT, DASHED WHERE APPROXIMATELY LOCATED. U DENOTES UPTHROWN SIDE, D DENOTES DOWNTHROWN SIDE
- CONCEALED FAULT
- LOCATION OF GEOLOGIC SECTION

GEOLOGY BY CALIFORNIA DEPARTMENT OF WATER RESOURCES FROM ORIGINAL MAPPING AND BY MODIFICATION OF PREVIOUS MAPPING OF THE CALIFORNIA DIVISION OF MINES AND GEOLOGY

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

AREAL GEOLOGY
ALTURAS GROUND WATER BASIN
1962

SCALE OF MILES



STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN AQUIFERS ALTURAS GROUND WATER BASIN

SPRING 1960

WITHIN THIS AREA, WATERS CONTAINING HAZARDOUS SODIUM CONCENTRATIONS ARE FOUND.
NOTE
REFER TO DISCUSSION COMMENCING ON PAGES 33 AND 110

NOT EVALUATED

NOT EVALUATED

ROAD SYMBOLS

KEY TO PLATES

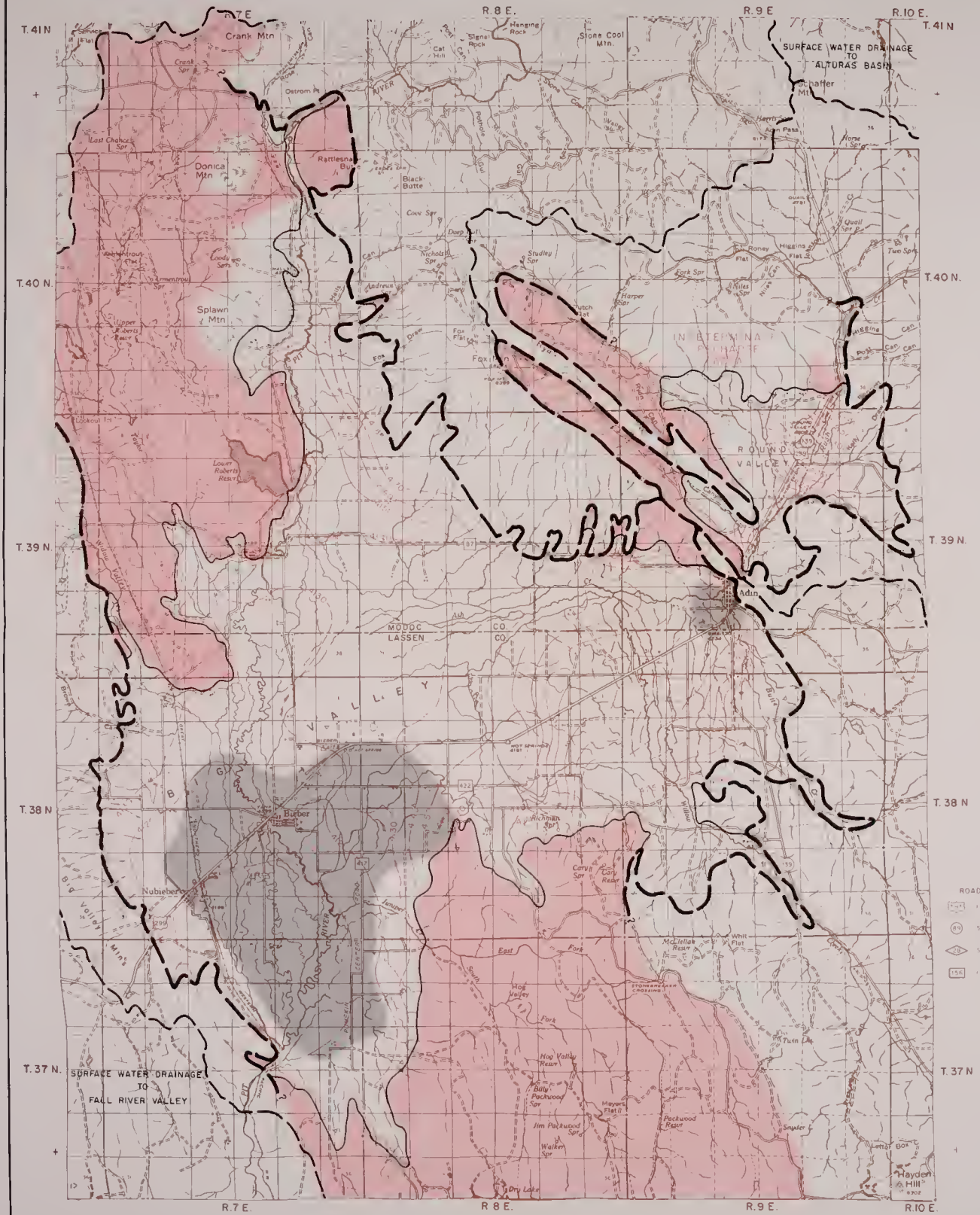
LEGEND

- A — BEST AREAS FOR DEVELOPMENT OF GROUND WATER
  Properly constructed wells located in "A" Zone areas should yield sufficient quantities of ground water for irrigation purposes.
- B — GOOD AREAS FOR DEVELOPMENT OF GROUND WATER
  Properly constructed wells located in "B" Zone areas should yield sufficient quantities of ground water for most irrigation purposes. Yields generally will be somewhat less than in "A" Zone areas.
- C — FAIR AREAS FOR DEVELOPMENT OF GROUND WATER
  Properly constructed wells located in "C" Zone areas may yield sufficient quantities of ground water for irrigation purposes. Yields should be sufficient for domestic and stock watering purposes, but generally will be substantially less than in "A" or "B" Zone areas.
- D — POOR AREAS FOR DEVELOPMENT OF GROUND WATER
  Properly constructed wells located in "D" Zone areas may yield sufficient quantities of ground water for domestic or stock watering purposes. The possibility of dry holes is much greater in "D" Zone areas than in other zones.
- WATER QUALITY HAZARD AREA
- VALLEY FLOOR AREA BOUNDARY

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

POTENTIAL FOR DEVELOPMENT OF GROUND WATER ALTURAS GROUND WATER BASIN 1962

SCALE OF MILES



LEGEND

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN NEAR-SURFACE AQUIFERS DASHED WHERE INFERRED

UPLAND RECHARGE AREAS

AREA FOR WHICH LINES OF EQUAL ELEVATION OF WATER IN WELLS IN CONFINED AQUIFERS IS SHOWN (See Plate 2)

GROUND WATER BASIN BOUNDARY

SURFACE WATER DRAINAGE BOUNDARY

VALLEY FLOOR AREA BOUNDARY WHERE DIFFERENT FROM GROUND WATER BASIN BOUNDARY)

NOTE GROUND WATER EXISTS IN THE NEAR-SURFACE AQUIFERS IN CONDITIONS RANGING FROM UNCONFINED TO CONFINED

STATE OF CALIFORNIA
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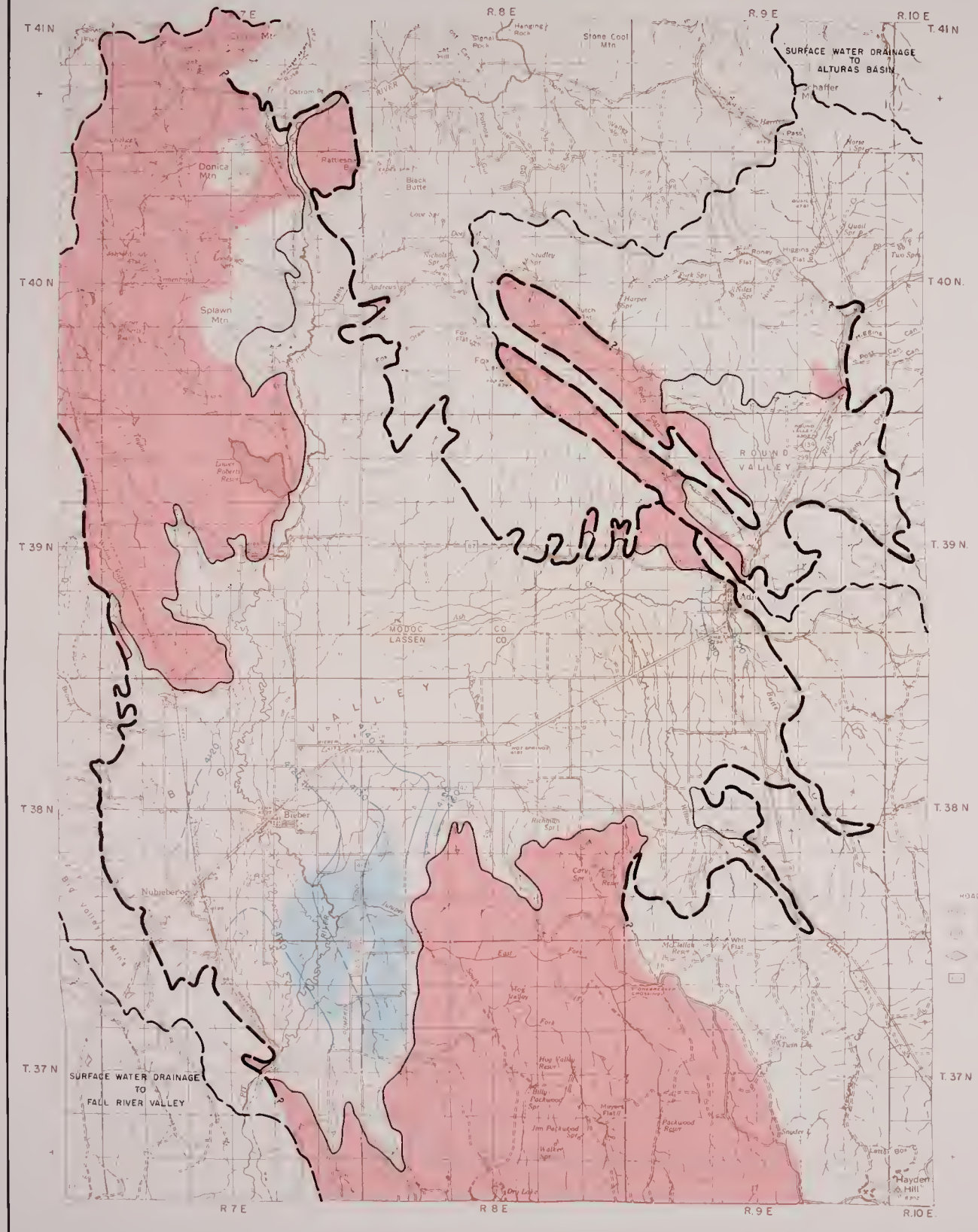
GROUND WATER INVESTIGATION

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN NEAR-SURFACE AQUIFERS BIG VALLEY AND ROUND VALLEY GROUND WATER BASINS

SPRING 1960

SCALE OF MILES



LEGEND

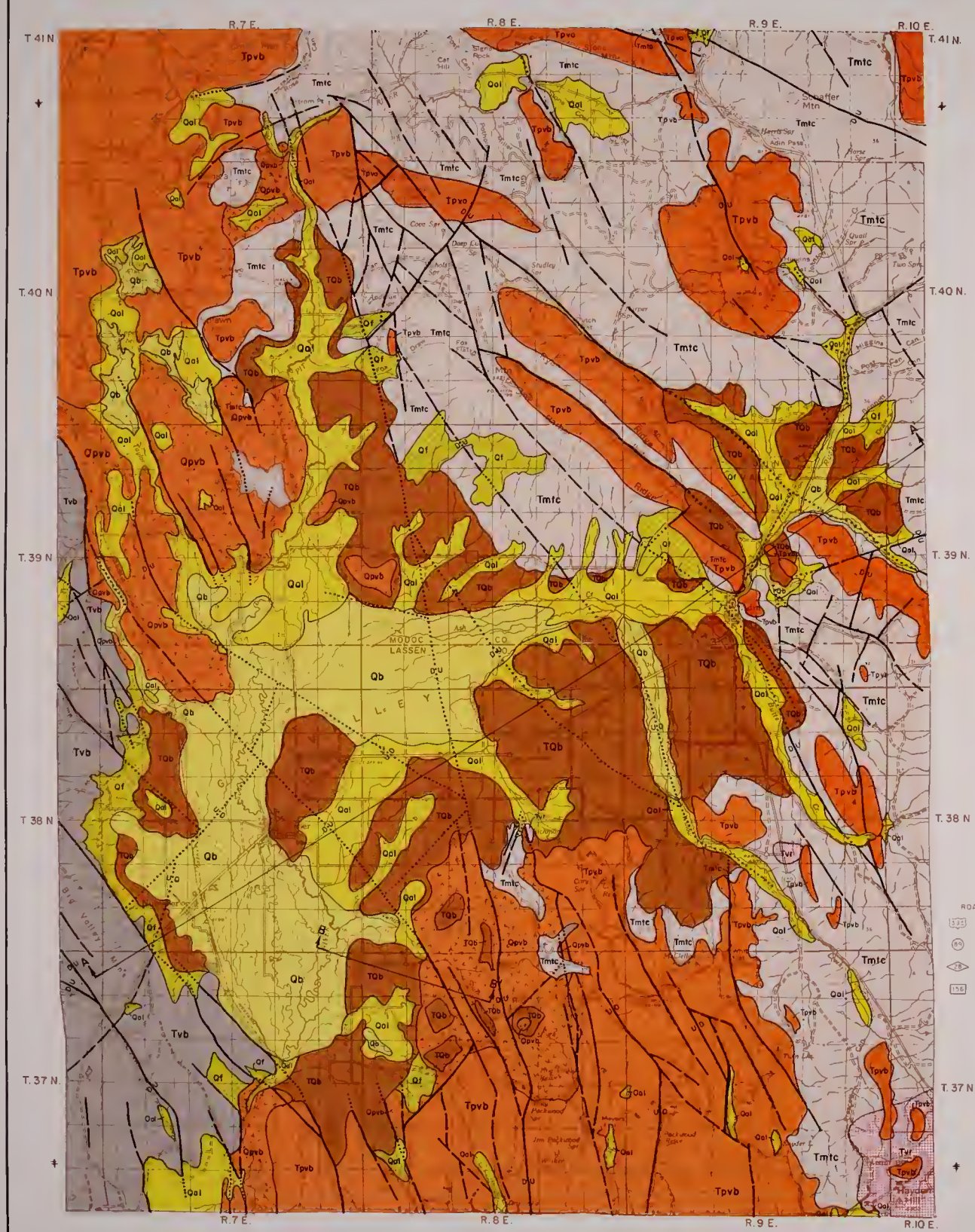
- GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN CONFINED AQUIFERS, DASHED WHERE INFERRED
- UPLAND RECHARGE AREAS
- AREA WHERE GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN CONFINED AQUIFERS ARE ABOVE GROUND SURFACE
- GROUND WATER BASIN BOUNDARY
- SURFACE WATER DRAINAGE BOUNDARY
- VALLEY FLOOR AREA BOUNDARY WHERE DIFFERENT FROM GROUND WATER BASIN BOUNDARY

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH

NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN CONFINED AQUIFERS BIG VALLEY AND ROUND VALLEY GROUND WATER BASINS

SPRING 1960



GEOLOGIC UNITS

SEDIMENTARY ROCKS

CENOZOIC — QUATERNARY — Recent

- Qsd SAND DUNES
- Qs SAND AND SILT DEPOSITS
- Ql RECENT LAKE DEPOSITS
- Qls LANDSLIDES
- Qta TALUS
- Qma MUCK AND PEAT DEPOSITS
- Qb BASIN DEPOSITS
- Qal INTERMEDIATE ALLUVIAL DEPOSITS
- Qf ALLUVIAL FANS
- Qt TERRACES
- Qns NEAR-SHORE DEPOSITS

CENOZOIC — QUATERNARY — Pleistocene

- Qal PLEISTOCENE AND LAHONTAN LAKE DEPOSITS
- Qgo GLACIAL OUTWASH
- Qgm MORAINES

CENOZOIC — TERTIARY — Pliocene

- TQa ALTURAS FORMATION
- Tpb BIEBER FORMATION
- Tpl PLIOCENE LAKE DEPOSITS

CENOZOIC — TERTIARY — Miocene

- Tmfc FORTY-NINE CAMP FORMATION
- TQdc DEEP CREEK CONGLOMERATE
- Tag AURIFEROUS GRAVELS
- Tga GOLD RUN SANDSTONE

CENOZOIC — TERTIARY — Undivided

- Tfs FORT SAGE SANDSTONE

VOLCANIC ROCKS

CENOZOIC — QUATERNARY — Recent

- Qvb RECENT BASALT
- Qvbc PLEISTOCENE AND RECENT CINDER CONES

CENOZOIC — QUATERNARY — Pleistocene

- Qpvb PLEISTOCENE BASALT
- Qpvp PLEISTOCENE PYROCLASTIC ROCKS
- TQvb PLIO-PLEISTOCENE BASALT
- TQvp PLIO-PLEISTOCENE PYROCLASTIC ROCKS
- TQwt WARM SPRINGS TUFF

CENOZOIC — TERTIARY — Pliocene

- Tpvb PLIOCENE BASALT
- Tpva PLIOCENE ANDESITE
- Tpvp PLIOCENE PYROCLASTIC ROCKS

CENOZOIC — TERTIARY — Miocene

- Tmv MIOCENE VOLCANIC ROCKS, UNDIVIDED
- Tmvb MIOCENE BASALT
- Tmva MIOCENE ANDESITE
- Tmvp MIOCENE PYROCLASTIC ROCKS
- Tmtc TURNER CREEK FORMATION
- Tmc CEDARVILLE SERIES

CENOZOIC — TERTIARY — Undivided

- Tr RHYOLITE
- Tvb BIG VALLEY MOUNTAIN VOLCANIC SERIES
- Tsv SIERRAN VOLCANIC ROCKS, UNDIVIDED
- Tsvb SIERRAN BASALT
- Tsva SIERRAN ANDESITE
- Tsvp SIERRAN PYROCLASTIC ROCKS

BASEMENT COMPLEX

- MESOZOIC — JKgr GRANITIC ROCKS
- PALEOZOIC — pKm METAMORPHIC ROCKS

NOTE: [illegible] THAT APPEARS ON THIS SHEET. FOR DESCRIPTION OF PHYSICAL AND WATER-BEARING PROPERTIES REFER TO STRATIGRAPHIC COLUMN (TABLE III)

ROAD SYMBOLS

- 395 S. HIGHWAY
- 80 STATE SIGN ROUTE
- 28 STATE HIGHWAY ROUTE
- 156 COUNTY ROAD

SYMBOLS

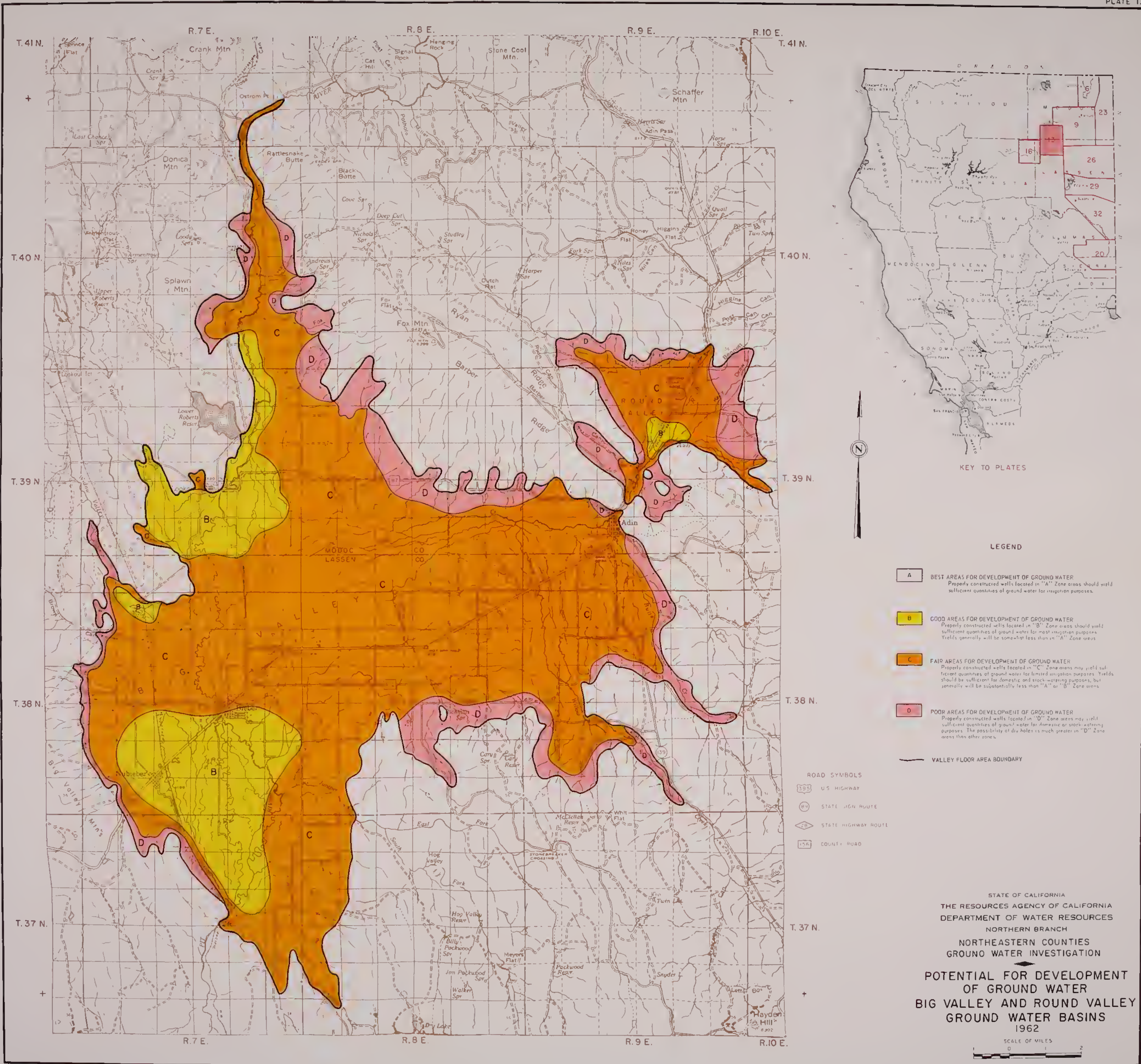
- GEOLOGIC CONTACT
- FAULT, DASHED WHERE APPROXIMATELY LOCATED. U DENOTES UPTHROWN SIDE; D DENOTES DOWNTHROWN SIDE
- CONCEALED FAULT
- A — A' LOCATION OF GEOLOGIC SECTION

GEOLOGY BY CALIFORNIA DEPARTMENT OF WATER RESOURCES FROM ORIGINAL MAPPING AND BY MODIFICATION OF PREVIOUS MAPPING OF THE CALIFORNIA DIVISION OF MINES AND GEOLOGY

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

AREAL GEOLOGY
BIG VALLEY AND ROUND VALLEY GROUND WATER BASINS
1962

SCALE OF MILES


R.7 E.
R.8 E.
R.9 E.
R.10 E.
T. 41 N.
T. 40 N.
T. 39 N.
T. 38 N.
T. 37 N.
Crank Mtn
Stone Coal Mtn.
Schaffer Mtn
Donica Mtn
Splawn Mtn
Rattlesnake Butte
Fox Mtn
Adin
ROUND VALLEY
BIG VALLEY
MODOC
LASSEN
Nubieber
Hayden Hill
KEY TO PLATES
LEGEND
BEST AREAS FOR DEVELOPMENT OF GROUND WATER
Properly constructed wells located in "A" Zone areas should yield sufficient quantities of ground water for irrigation purposes.
GOOD AREAS FOR DEVELOPMENT OF GROUND WATER
Properly constructed wells located in "B" Zone areas should yield sufficient quantities of ground water for most irrigation purposes. Yields generally will be somewhat less than in "A" Zone areas.
FAIR AREAS FOR DEVELOPMENT OF GROUND WATER
Properly constructed wells located in "C" Zone areas may yield sufficient quantities of ground water for limited irrigation purposes. Yields should be sufficient for domestic and stock-watering purposes, but generally will be substantially less than "A" or "B" Zone areas.
POOR AREAS FOR DEVELOPMENT OF GROUND WATER
Properly constructed wells located in "D" Zone areas may yield sufficient quantities of ground water for domestic or stock-watering purposes. The possibility of dry holes is much greater in "D" Zone areas than other zones.
VALLEY FLOOR AREA BOUNDARY
ROAD SYMBOLS
U.S. HIGHWAY
STATE SIGN ROUTE
STATE HIGHWAY ROUTE
COUNTY ROAD
STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
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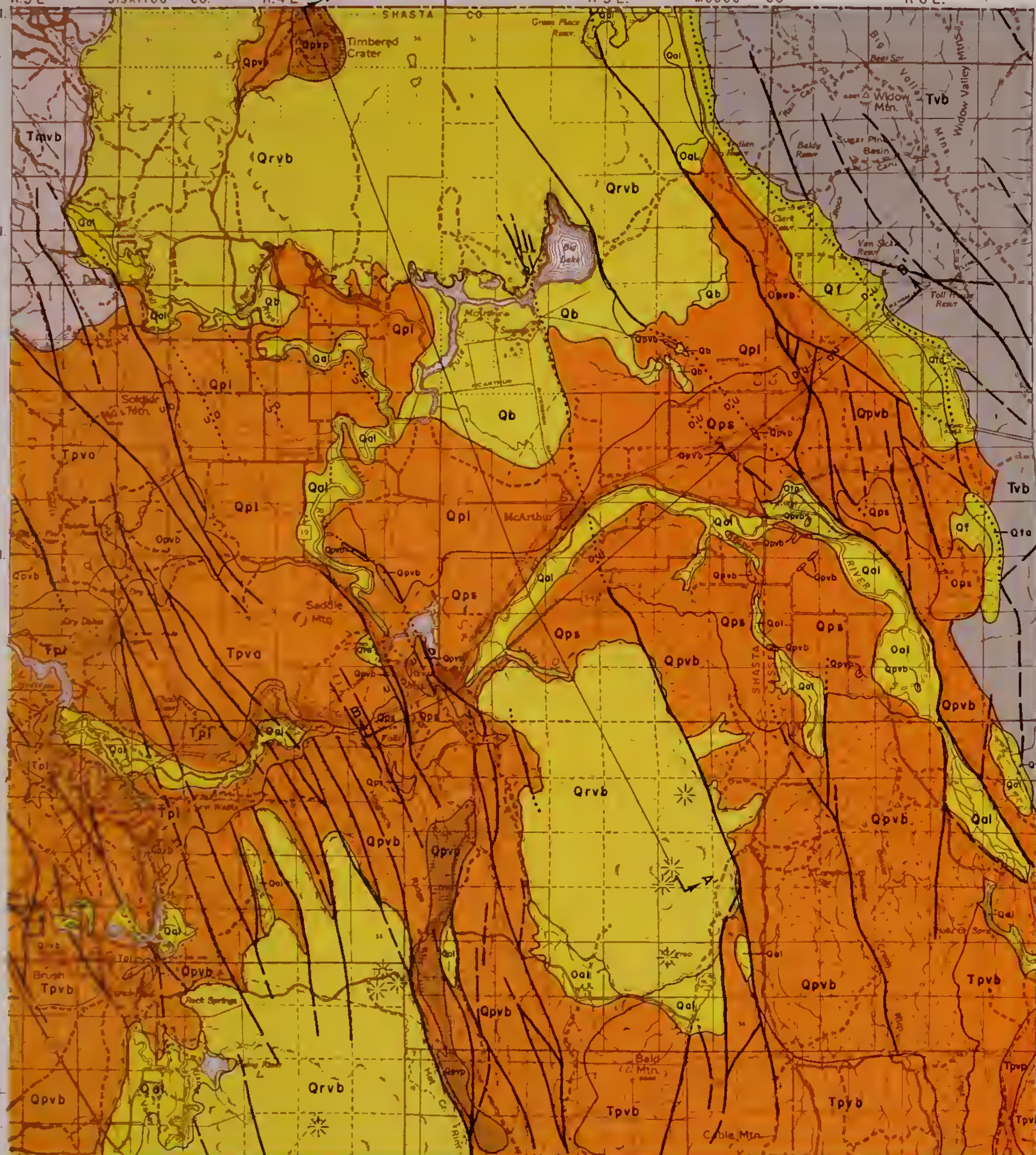
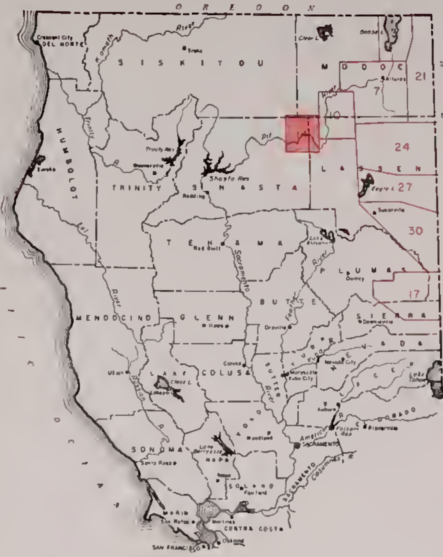
GROUND WATER INVESTIGATION
POTENTIAL FOR DEVELOPMENT
OF GROUND WATER
BIG VALLEY AND ROUND VALLEY
GROUND WATER BASINS
1962
SCALE OF MILES



ROAD SYMBOLS

U.S. HIGHWAY
STATE SIGN ROUTE
STATE HIGHWAY ROUTE
COUNTY ROAD



KEY TO PLATES

GEOLOGIC UNITS

SEDIMENTARY ROCKS

CENOZOIC

QUATERNARY — Recent
- Qsd SAND DUNES
- Qs SAND AND SILT DEPOSITS
- Ql RECENT LAKE DEPOSITS
- Qls LANDSLIDES
- Qta TALUS
- Qmp MUCK AND PEAT DEPOSITS
- Qb BASIN DEPOSITS
- Qal INTERMEDIATE ALLUVIAL DEPOSITS
- Qf ALLUVIAL FANS
- Qt TERRACES

QUATERNARY — Pleistocene
- Qps NEAR-SHORE DEPOSITS
- Qpl PLEISTOCENE AND LAHONTAN LAKE DEPOSITS
- Qpo GLACIAL OUTWASH
- Qpm MORAINES
- TQa ALTURAS FORMATION
- TQb BIEBER FORMATION

TERTIARY
- Plio-cene: Tpl PLIOCENE LAKE DEPOSITS
- Mio-cene: Tmfc FORTY-NINE CAMP FORMATION
- Oligo-cene: TOdc DEEP CREEK CONGLOMERATE
- Eo-cene: Teg AURIFEROUS GRAVELS
- Undivided: Tgs GOLD RUN SANDSTONE
- Undivided: Tfs FORT SAGE SANDSTONE

VOLCANIC ROCKS

CENOZOIC

QUATERNARY — Recent
- Qrvb RECENT BASALT
- PLEISTOCENE AND RECENT CINDER CONES

QUATERNARY — Pleistocene
- Qpvb PLEISTOCENE BASALT
- Qpvp PLEISTOCENE PYROCLASTIC ROCKS
- TQvb PLIO-PLEISTOCENE BASALT
- TQvp PLIO-PLEISTOCENE PYROCLASTIC ROCKS
  - TQvt WARM SPRINGS TUFF

TERTIARY — Pliocene
- Tpvb PLIOCENE BASALT
- Tpva PLIOCENE ANDESITE
- Tpvp PLIOCENE PYROCLASTIC ROCKS

TERTIARY — Miocene
- Tmv MIOCENE VOLCANIC ROCKS, UNDIVIDED
  - Tmvb MIOCENE BASALT
  - Tmva MIOCENE ANDESITE
  - Tmvp MIOCENE PYROCLASTIC ROCKS
- Tmtc TURNER CREEK FORMATION
- Tmc CEDARVILLE SERIES

TERTIARY — Undivided
- Tvr RHYOLITE
- Tvb BIG VALLEY MOUNTAIN VOLCANIC SERIES
- Tsv SIERRAN VOLCANIC ROCKS, UNDIVIDED
  - Tsvb SIERRAN BASALT
  - Tsva SIERRAN ANDESITE
  - Tsvp SIERRAN PYROCLASTIC ROCKS

BASEMENT COMPLEX

- MESOZOIC: JKgr GRANITIC ROCKS
- PALEOZOIC: pKm METAMORPHIC ROCKS

SYMBOLS

- GEOLOGIC CONTACT
- FAULT, DASHED WHERE APPROXIMATELY LOCATED. U DENOTES UPTHROWN SIDE, D DENOTES DOWNTHROWN SIDE
- CONCEALED FAULT
- LOCATION OF GEOLOGIC SECTION

GEOLOGY BY CALIFORNIA DEPARTMENT OF WATER RESOURCES FROM ORIGINAL MAPPING AND BY MODIFICATION OF PREVIOUS MAPPING OF THE CALIFORNIA DIVISION OF MINES AND GEOLOGY

NOTE

COLOR IN LEGEND BOX INDICATES GEOLOGIC UNIT THAT APPEARS ON THIS SHEET

FOR DESCRIPTION OF PHYSICAL AND WATER-BEARING PROPERTIES, REFER TO STRATIGRAPHIC COLUMN (TABLE 12)

N

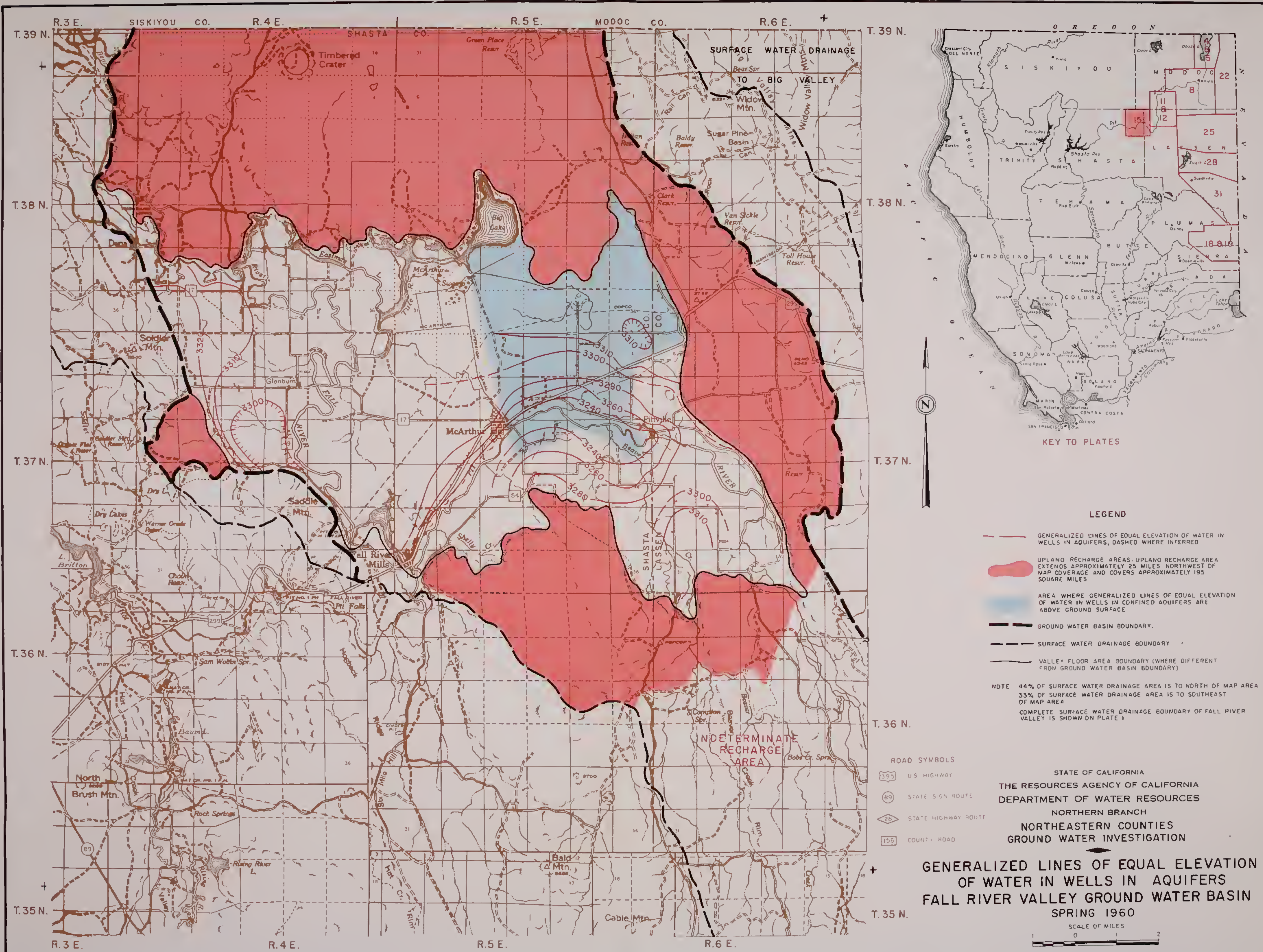
STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH

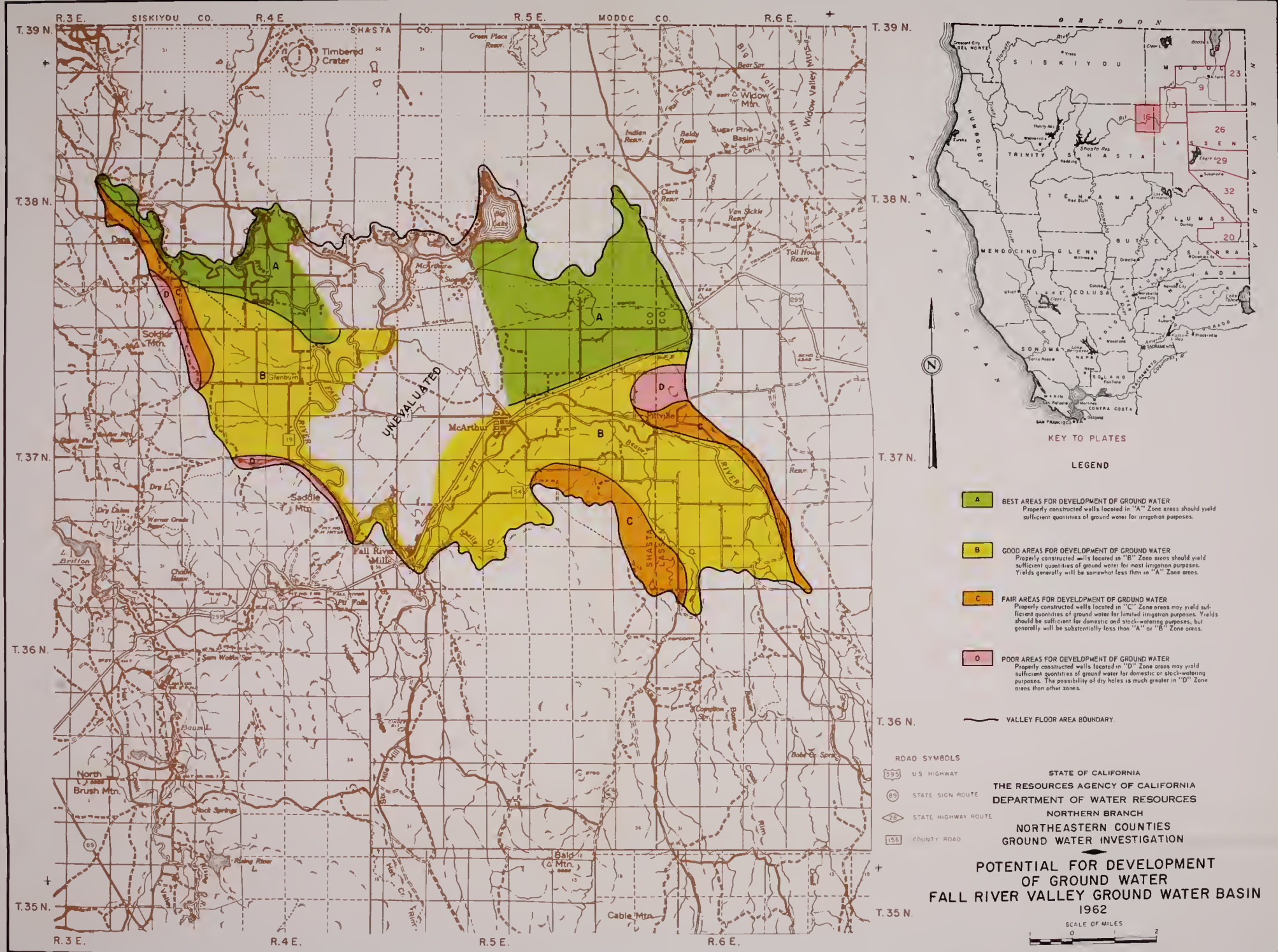
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

AREAL GEOLOGY
FALL RIVER VALLEY GROUND WATER BASIN

1962

SCALE OF MILES
0 2


R.3 E.
SISKIYOU CO.
R.4 E.
SHASTA CO.
R.5 E.
MODOC CO.
R.6 E.
T. 39 N.
T. 38 N.
T. 37 N.
T. 36 N.
T. 35 N.
SURFACE WATER DRAINAGE TO BIG VALLEY
Timbered Crater
Widow Mtn.
Big Lake
McArthur
Pittville
Glenburn
Soldier Mtn.
Saddle Mtn.
Fall River Mills
Pit Falls
Sam Wood Spr.
North Brush Mtn.
Rock Springs
Bald Mtn.
Cable Mtn.
FALL RIVER
PIT
INDETERMINATE RECHARGE AREA
3320
3310
3300
3280
3260
3240
KEY TO PLATES
LEGEND
GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN AQUIFERS, DASHED WHERE INFERRED
UPLAND RECHARGE AREAS. UPLAND RECHARGE AREA EXTENDS APPROXIMATELY 25 MILES NORTHWEST OF MAP COVERAGE AND COVERS APPROXIMATELY 195 SQUARE MILES
AREA WHERE GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN CONFINED AQUIFERS ARE ABOVE GROUND SURFACE
GROUND WATER BASIN BOUNDARY.
SURFACE WATER DRAINAGE BOUNDARY
VALLEY FLOOR AREA BOUNDARY (WHERE DIFFERENT FROM GROUND WATER BASIN BOUNDARY)
NOTE 44% OF SURFACE WATER DRAINAGE AREA IS TO NORTH OF MAP AREA
33% OF SURFACE WATER DRAINAGE AREA IS TO SOUTHEAST OF MAP AREA
COMPLETE SURFACE WATER DRAINAGE BOUNDARY OF FALL RIVER VALLEY IS SHOWN ON PLATE 1
ROAD SYMBOLS
U.S. HIGHWAY
STATE SIGN ROUTE
STATE HIGHWAY ROUTE
COUNTY ROAD
STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION
GENERALIZED LINES OF EQUAL ELEVATION
OF WATER IN WELLS IN AQUIFERS
FALL RIVER VALLEY GROUND WATER BASIN
SPRING 1960
SCALE OF MILES



KEY TO PLATES

LEGEND

A — BEST AREAS FOR DEVELOPMENT OF GROUND WATER
Properly constructed wells located in "A" Zone areas should yield sufficient quantities of ground water for irrigation purposes.

B — GOOD AREAS FOR DEVELOPMENT OF GROUND WATER
Properly constructed wells located in "B" Zone areas should yield sufficient quantities of ground water for most irrigation purposes. Yields generally will be somewhat less than in "A" Zone areas.

C — FAIR AREAS FOR DEVELOPMENT OF GROUND WATER
Properly constructed wells located in "C" Zone areas may yield sufficient quantities of ground water for limited irrigation purposes. Yields should be sufficient for domestic and stock-watering purposes, but generally will be substantially less than "A" or "B" Zone areas.

D — POOR AREAS FOR DEVELOPMENT OF GROUND WATER
Properly constructed wells located in "D" Zone areas may yield sufficient quantities of ground water for domestic or stock-watering purposes. The possibility of dry holes is much greater in "D" Zone areas than other zones.

VALLEY FLOOR AREA BOUNDARY.

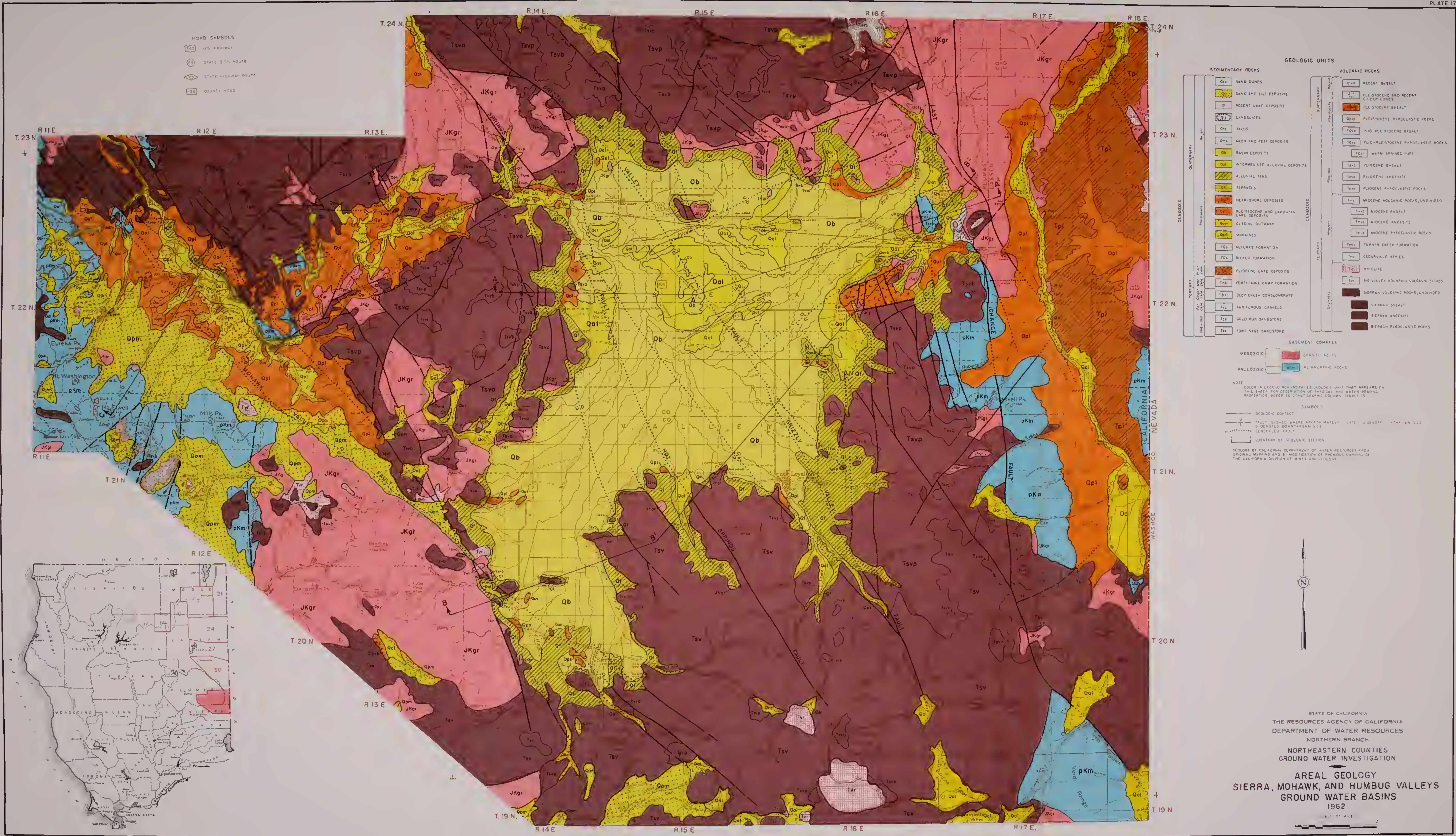
ROAD SYMBOLS
395 U.S. HIGHWAY
89 STATE SIGN ROUTE
28 STATE HIGHWAY ROUTE
156 COUNTY ROAD

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

POTENTIAL FOR DEVELOPMENT OF GROUND WATER FALL RIVER VALLEY GROUND WATER BASIN

1962

SCALE OF MILES
0 2

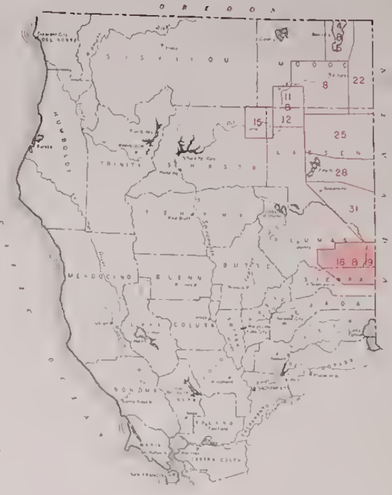

ROAD SYMBOLS
U.S. HIGHWAY
STATE SIGN ROUTE
STATE HIGHWAY ROUTE
COUNTY ROAD
GEOLOGIC UNITS
SEDIMENTARY ROCKS
SAND DUNES
SAND AND SILT DEPOSITS
RECENT LAKE DEPOSITS
LANDSLIDES
TALUS
MUCK AND PEAT DEPOSITS
BASIN DEPOSITS
INTERMEDIATE ALLUVIAL DEPOSITS
ALLUVIAL FANS
TERRACES
NEAR-SHORE DEPOSITS
PLEISTOCENE AND LAHONTAN LAKE DEPOSITS
GLACIAL OUTWASH
MORAINES
ALTURAS FORMATION
BIEBER FORMATION
PLIOCENE LAKE DEPOSITS
FORTY-NINE CAMP FORMATION
DEEP CREEK CONGLOMERATE
AURIFEROUS GRAVELS
GOLD RUN SANDSTONE
FORT SAGE SANDSTONE
VOLCANIC ROCKS
RECENT BASALT
PLEISTOCENE AND RECENT CINDER CONES
PLEISTOCENE BASALT
PLEISTOCENE PYROCLASTIC ROCKS
PLIO-PLEISTOCENE BASALT
PLIO-PLEISTOCENE PYROCLASTIC ROCKS
WARM SPRINGS TUFF
PLIOCENE BASALT
PLIOCENE ANDESITE
PLIOCENE PYROCLASTIC ROCKS
MIOCENE VOLCANIC ROCKS, UNDIVIDED
MIOCENE BASALT
MIOCENE ANDESITE
MIOCENE PYROCLASTIC ROCKS
TURNER CREEK FORMATION
CEDARVILLE SERIES
RHYOLITE
BIG VALLEY MOUNTAIN VOLCANIC SERIES
SIERRAN VOLCANIC ROCKS, UNDIVIDED
SIERRAN BASALT
SIERRAN ANDESITE
SIERRAN PYROCLASTIC ROCKS
CENOZOIC
QUATERNARY
TERTIARY
BASEMENT COMPLEX
MESOZOIC
GRANITIC ROCKS
PALEOZOIC
METAMORPHIC ROCKS
SYMBOLS
GEOLOGIC CONTACT
CONCEALED FAULT
LOCATION OF GEOLOGIC SECTION
R.11 E.
R.12 E.
R.13 E.
R.14 E.
R.15 E.
R.16 E.
R.17 E.
R.18 E.
T. 24 N.
T. 23 N.
T. 22 N.
T. 21 N.
T. 20 N.
T. 19 N.
SIERRA VALLEY
MOHAWK VALLEY
Eureka Pk.
Mt. Washington
Mills Pk.
Loyalton
CALIFORNIA
NEVADA
WASHOE CO.
FAULT
HOT SPRINGS FAULT
GRIZZLY VALLEY FAULT
CHANCE
Verdi Range
STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION
AREAL GEOLOGY
SIERRA, MOHAWK, AND HUMBUG VALLEYS
GROUND WATER BASINS
1962

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN NEAR-SURFACE AQUIFERS SIERRA, MOHAWK, AND HUMBUG VALLEYS GROUND WATER BASINS

SPRING 1960

SCALE IN MILES



KEY TO PLATES

LEGEND

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN NEAR-SURFACE AQUIFERS, DASHED WHERE INFERRED

UPLAND RECHARGE AREAS

GROUND WATER BASIN BOUNDARY

SURFACE WATER DRAINAGE BOUNDARY

VALLEY FLOOR (ROCK) BOUNDARY (WHERE DIFFERENT FROM GROUND WATER BASIN BOUNDARY)

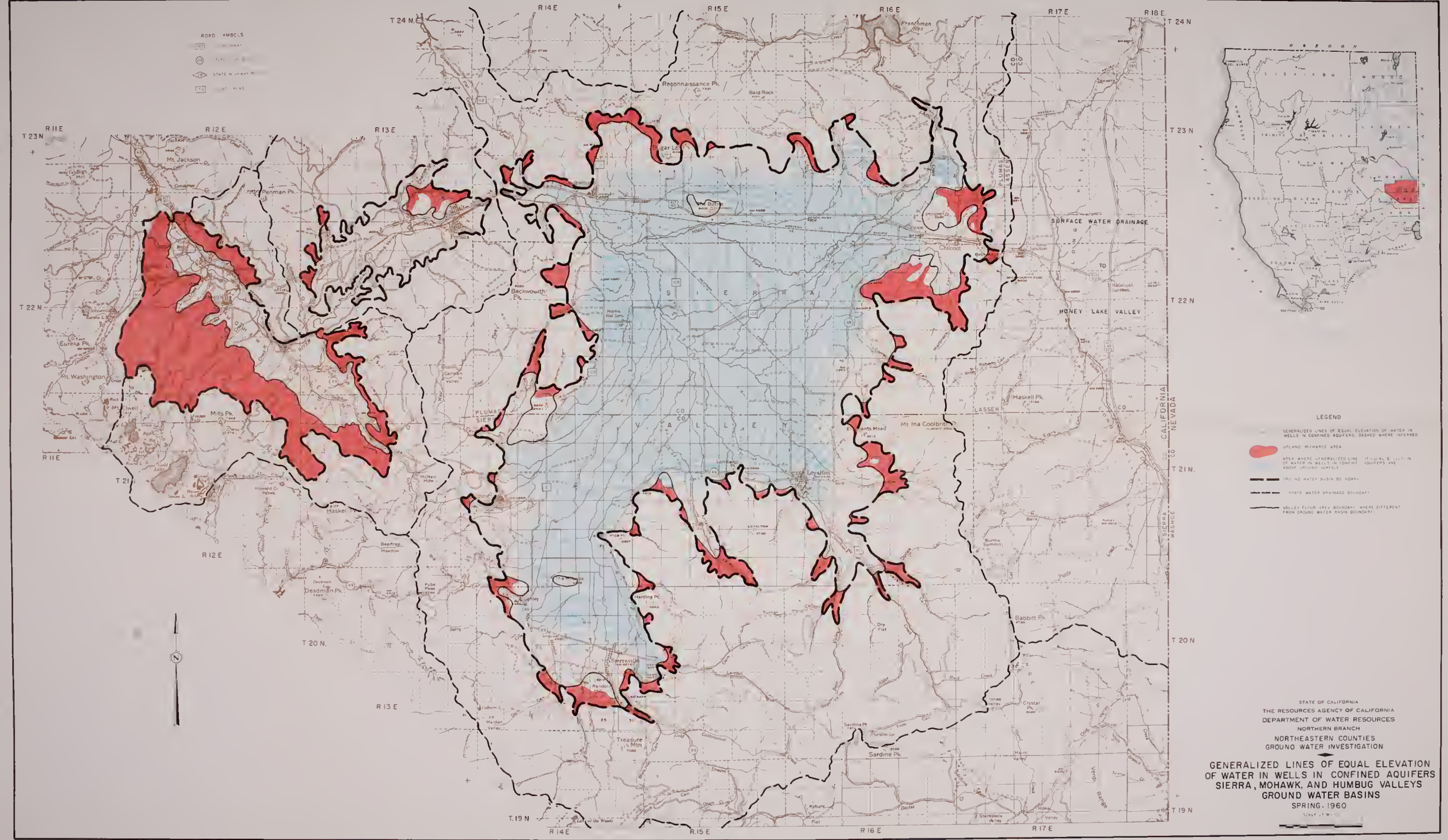
NOTE: GROUND WATER EXISTS IN THE NEAR-SURFACE AQUIFERS IN CONDITIONS RANGING FROM UNCONFINED TO CONFINED

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN NEAR-SURFACE AQUIFERS SIERRA, MOHAWK, AND HUMBUG VALLEYS GROUND WATER BASINS

SPRING 1960

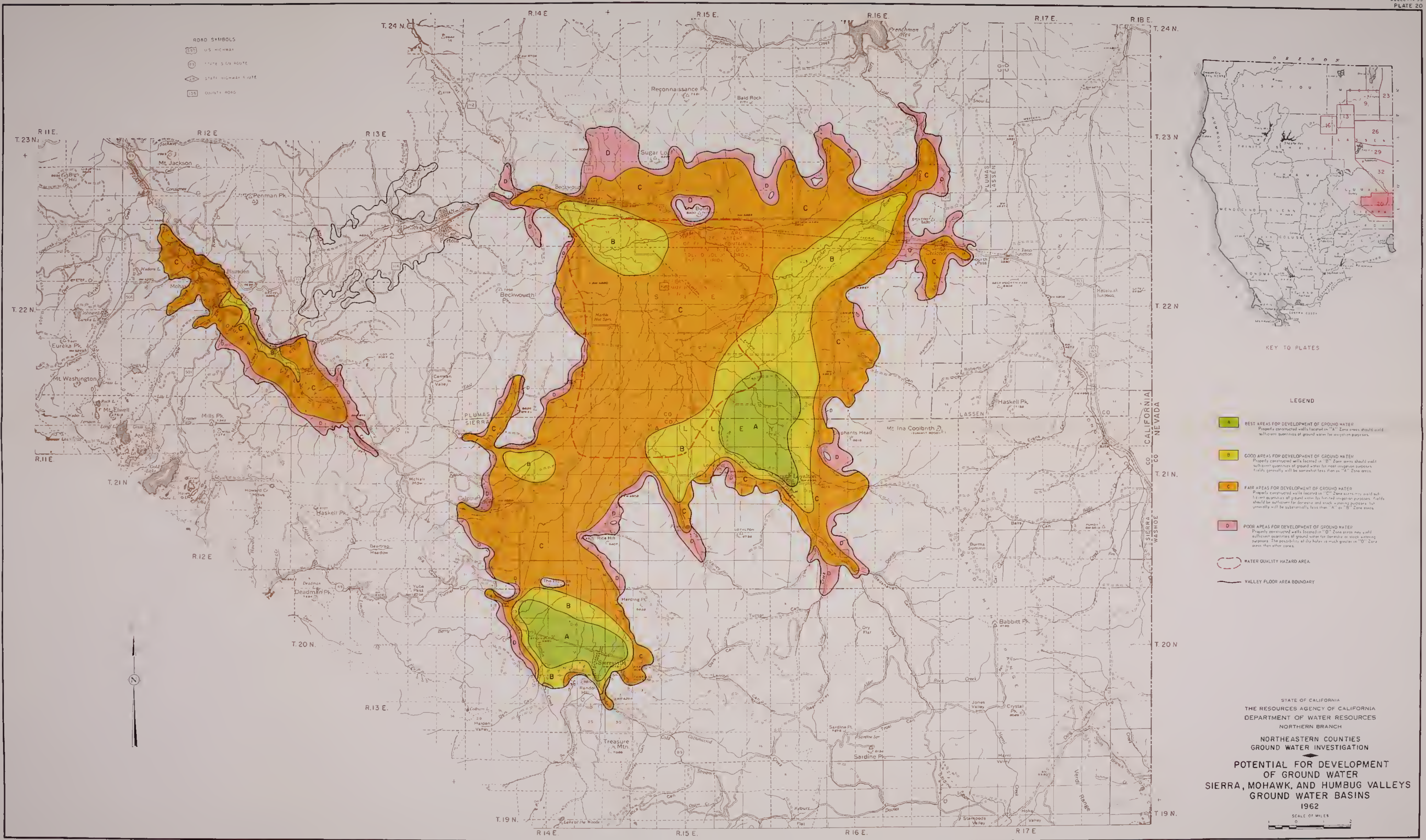
SCALE OF MILES

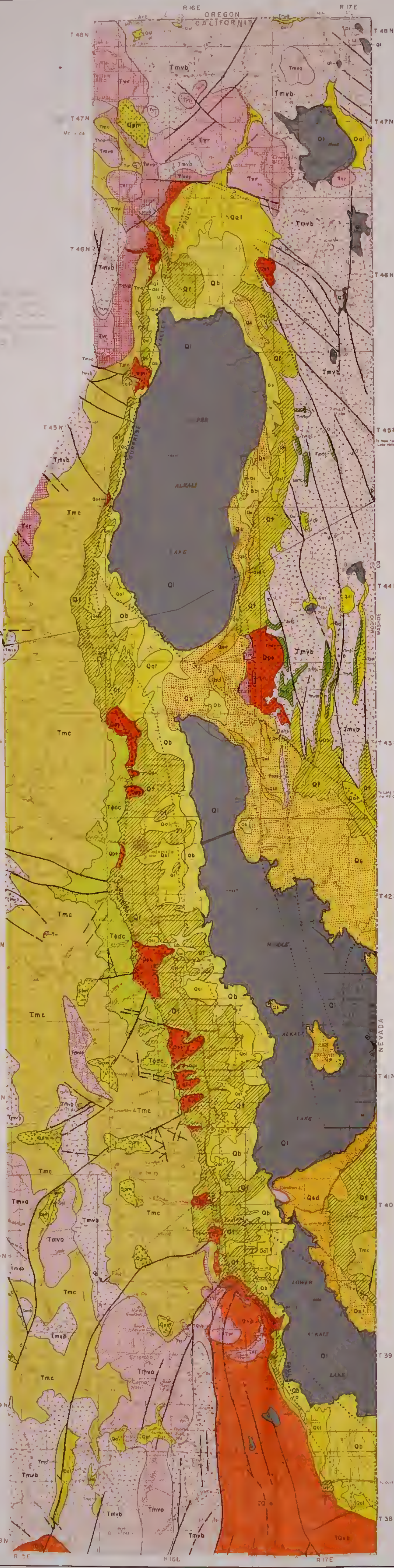


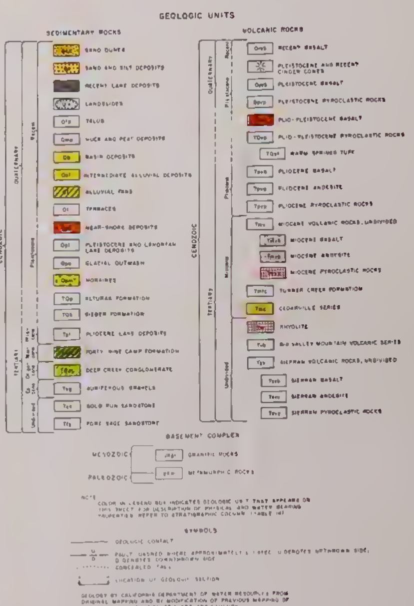
STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN CONFINED AQUIFERS SIERRA, MOHAWK, AND HUMBUG VALLEYS GROUND WATER BASINS

SPRING, 1960


ROAD SYMBOLS
U.S. HIGHWAY
STATE SIGN ROUTE
STATE HIGHWAY ROUTE
COUNTY ROAD
KEY TO PLATES
LEGEND
A BEST AREAS FOR DEVELOPMENT OF GROUND WATER
Properly constructed wells located in "A" Zone areas should yield sufficient quantities of ground water for irrigation purposes.
B GOOD AREAS FOR DEVELOPMENT OF GROUND WATER
Properly constructed wells located in "B" Zone areas should yield sufficient quantities of ground water for most irrigation purposes. Yields generally will be somewhat less than in "A" Zone areas.
C FAIR AREAS FOR DEVELOPMENT OF GROUND WATER
Properly constructed wells located in "C" Zone areas may yield sufficient quantities of ground water for limited irrigation purposes. Yields should be sufficient for domestic and stock watering purposes, but generally will be substantially less than "A" or "B" Zone areas.
D POOR AREAS FOR DEVELOPMENT OF GROUND WATER
Properly constructed wells located in "D" Zone areas may yield sufficient quantities of ground water for domestic or stock watering purposes. The possibility of dry holes is much greater in "D" Zone areas than other zones.
WATER QUALITY HAZARD AREA
VALLEY FLOOR AREA BOUNDARY
SIERRA VALLEY
CALIFORNIA
NEVADA
PLUMAS
SIERRA
LASSEN
Beckwourth
Portola
Loyalton
Sierraville
Chilcoot
Sugar Loaf
Reconnaissance Pk.
Frenchman Res.
Mt. Jackson
Penman Pk.
Beckwourth Pk.
Mt. Washington
Eureka Pk.
Mt. Elwell
Mills Pk.
Haskell Pk.
Deadman Pk.
Treasure Mtn.
Sardine Pk.
Babbitt Pk.
Mt. Ina Coolbrith
Crystal Pk.
R.11 E.
R.12 E.
R.13 E.
R.14 E.
R.15 E.
R.16 E.
R.17 E.
R.18 E.
T.24 N.
T.23 N.
T.22 N.
T.21 N.
T.20 N.
T.19 N.
STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION
POTENTIAL FOR DEVELOPMENT
OF GROUND WATER
SIERRA, MOHAWK, AND HUMBUG VALLEYS
GROUND WATER BASINS
1962
SCALE OF MILES
1 0 1 2



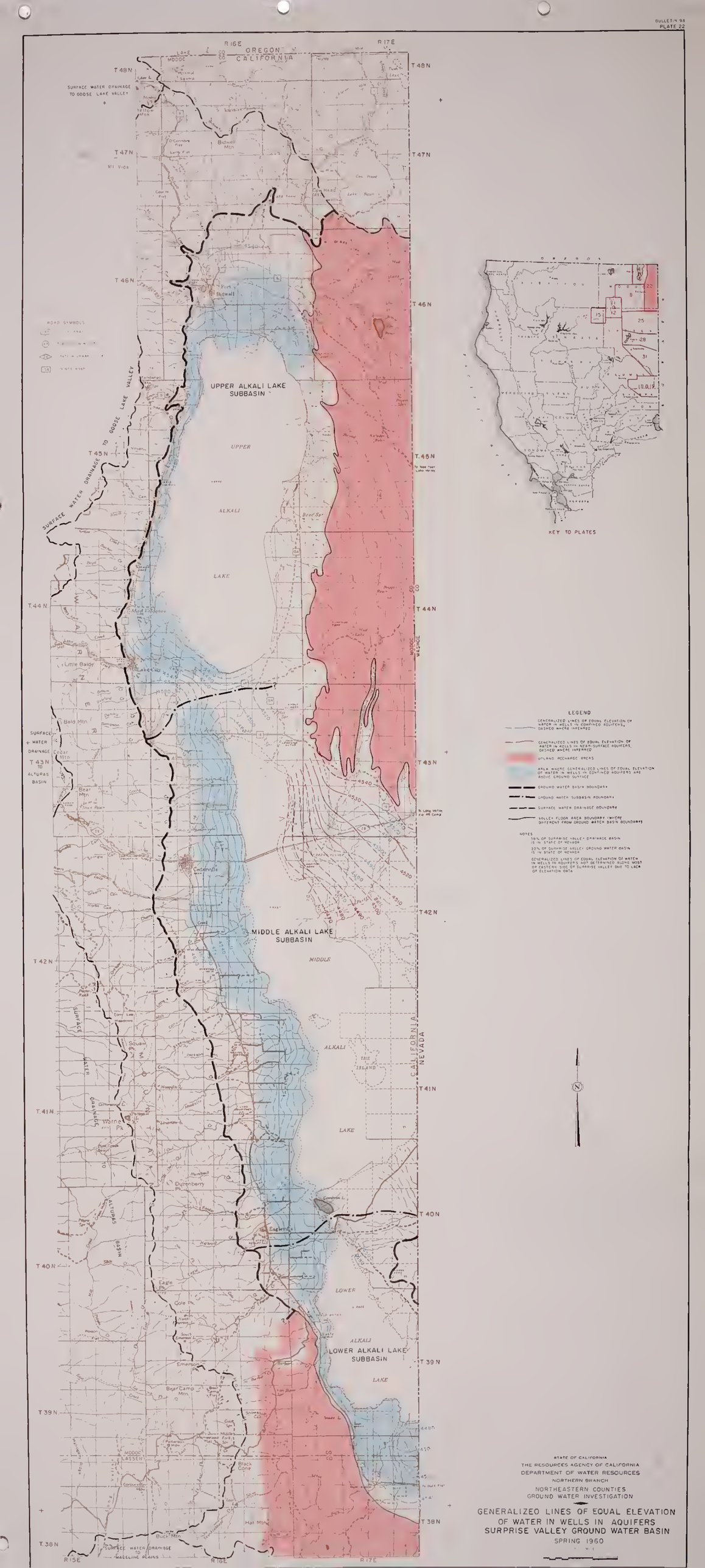


STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH

NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

AREAL GEOLOGY
SURPRISE VALLEY GROUND WATER BASIN

1962



KEY TO PLATES

LEGEND

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN CONFINED AQUIFERS, DASHED WHERE INFERRED

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN NEAR-SURFACE AQUIFERS, DASHED WHERE INFERRED

UPLAND RECHARGE AREAS

AREA WHERE GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN CONFINED AQUIFERS ARE ABOVE GROUND SURFACE

GROUND WATER BASIN BOUNDARY

GROUND WATER SUBBASIN BOUNDARY

SURFACE WATER DRAINAGE BOUNDARY

VALLEY FLOOR AREA BOUNDARY (WHERE DIFFERENT FROM GROUND WATER BASIN BOUNDARY)

NOTES

30% OF SURPRISE VALLEY DRAINAGE BASIN IS IN STATE OF NEVADA

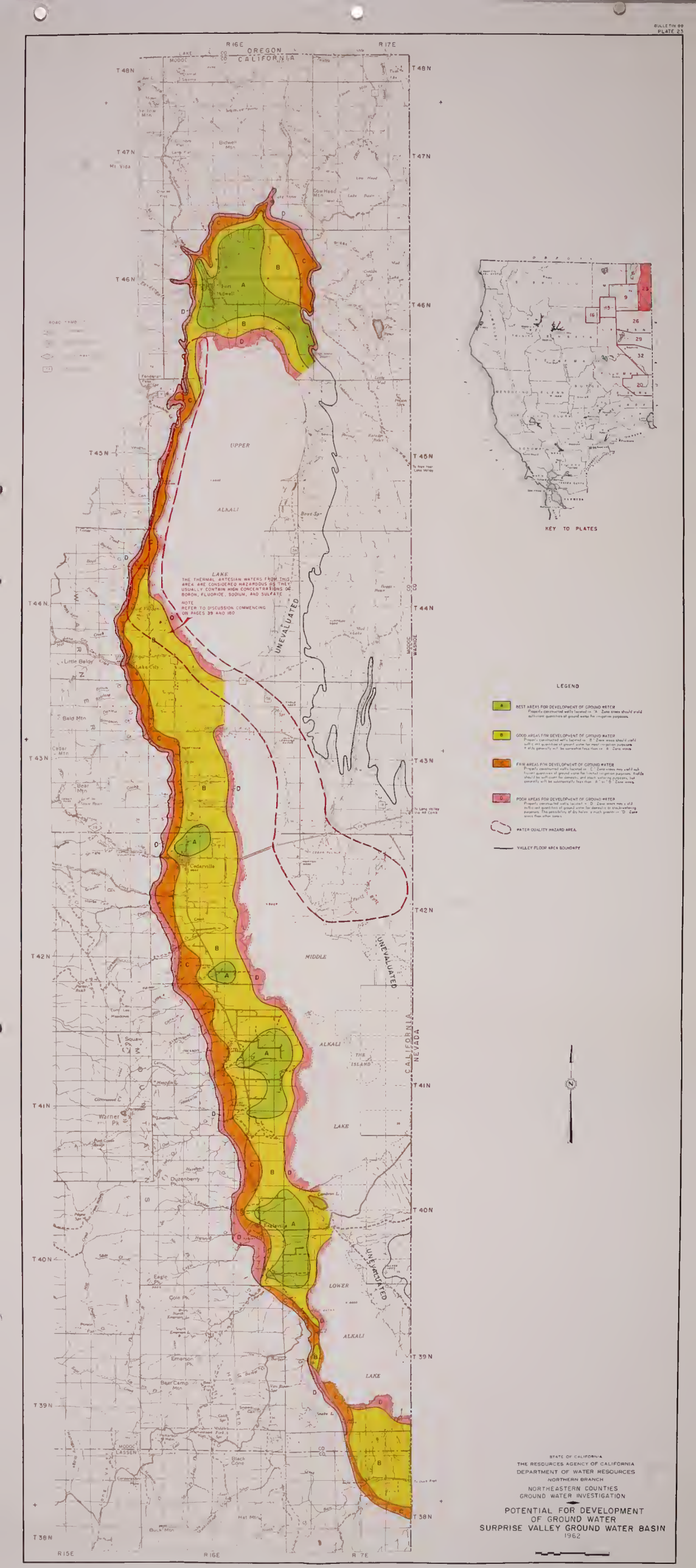
23% OF SURPRISE VALLEY GROUND WATER BASIN IS IN STATE OF NEVADA

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN AQUIFERS NOT DETERMINED ALONG MOST OF EASTERN SIDE OF SURPRISE VALLEY DUE TO LACK OF ELEVATION DATA

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN AQUIFERS SURPRISE VALLEY GROUND WATER BASIN

SPRING 1960



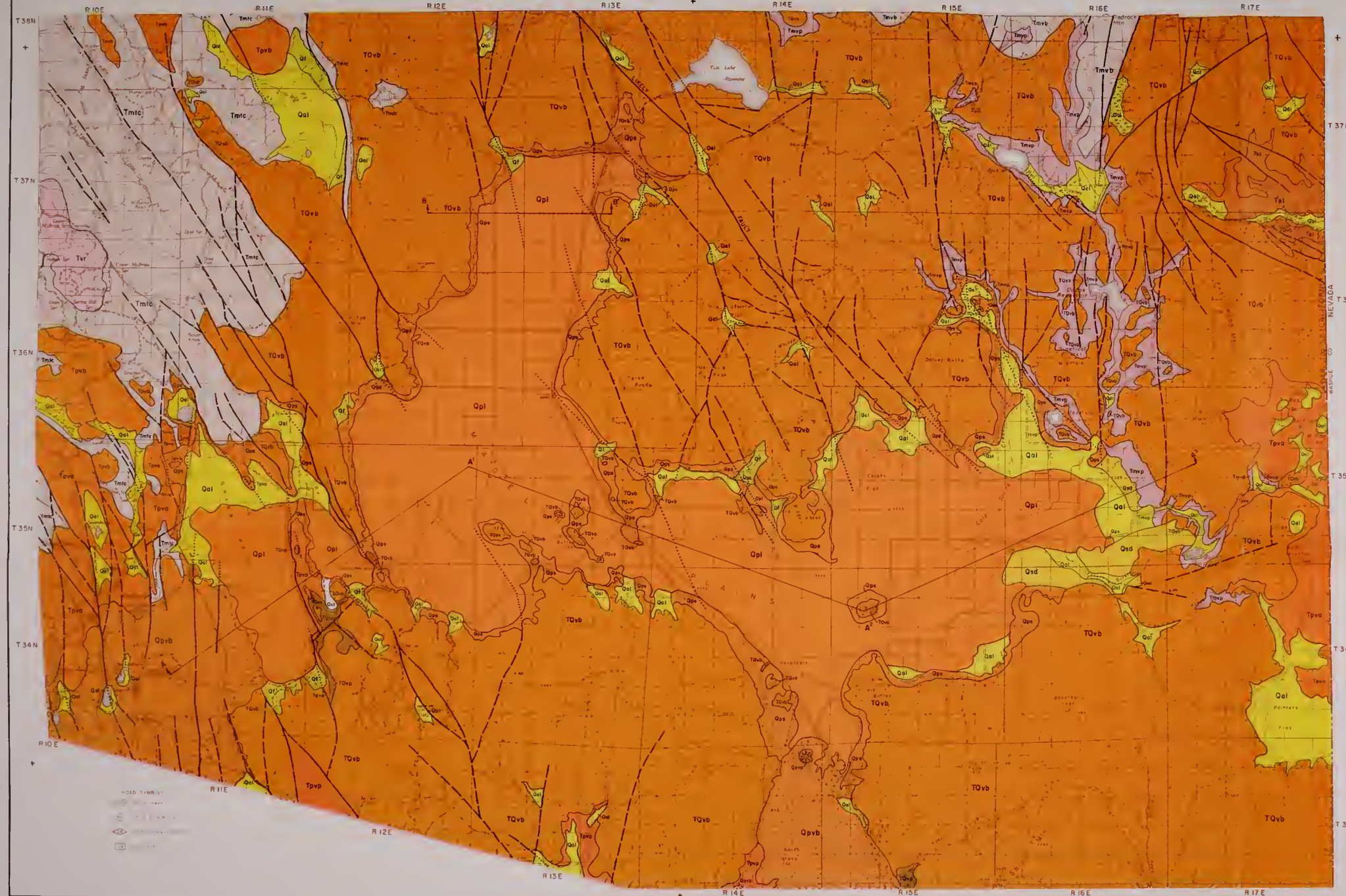
LEGEND

- A — BEST AREAS FOR DEVELOPMENT OF GROUND WATER. Properly constructed wells located in "A" Zone areas should yield maximum quantities of ground water for irrigation purposes.
- B — GOOD AREAS FOR DEVELOPMENT OF GROUND WATER. Properly constructed wells located in "B" Zone areas should yield sufficient quantities of ground water for most irrigation purposes. Yields generally will be somewhat less than in "A" Zone areas.
- C — FAIR AREAS FOR DEVELOPMENT OF GROUND WATER. Properly constructed wells located in "C" Zone areas may yield sufficient quantities of ground water for limited irrigation purposes. Yields should be sufficient for domestic and stock watering purposes, but generally will be substantially less than in "A" or "B" Zone areas.
- D — POOR AREAS FOR DEVELOPMENT OF GROUND WATER. Properly constructed wells located in "D" Zone areas may yield sufficient quantities of ground water for domestic or stock-watering purposes. The possibility of dry holes is much greater in "D" Zone areas than other zones.
- WATER QUALITY HAZARD AREA
- VALLEY FLOOR AREA BOUNDARY

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

POTENTIAL FOR DEVELOPMENT OF GROUND WATER SURPRISE VALLEY GROUND WATER BASIN

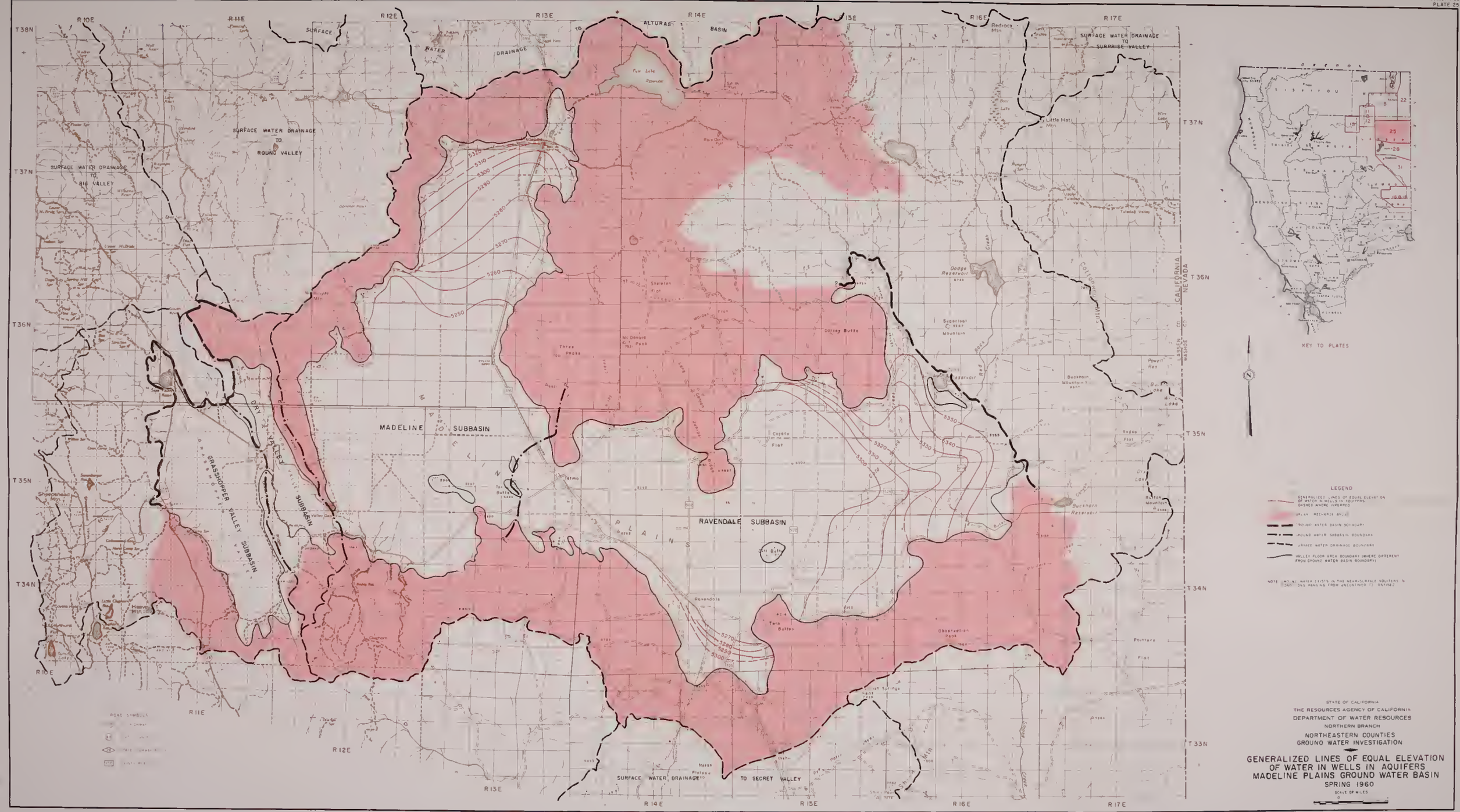
1962



STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

AREAL GEOLOGY
MADELINE PLAINS GROUND WATER BASIN

1962

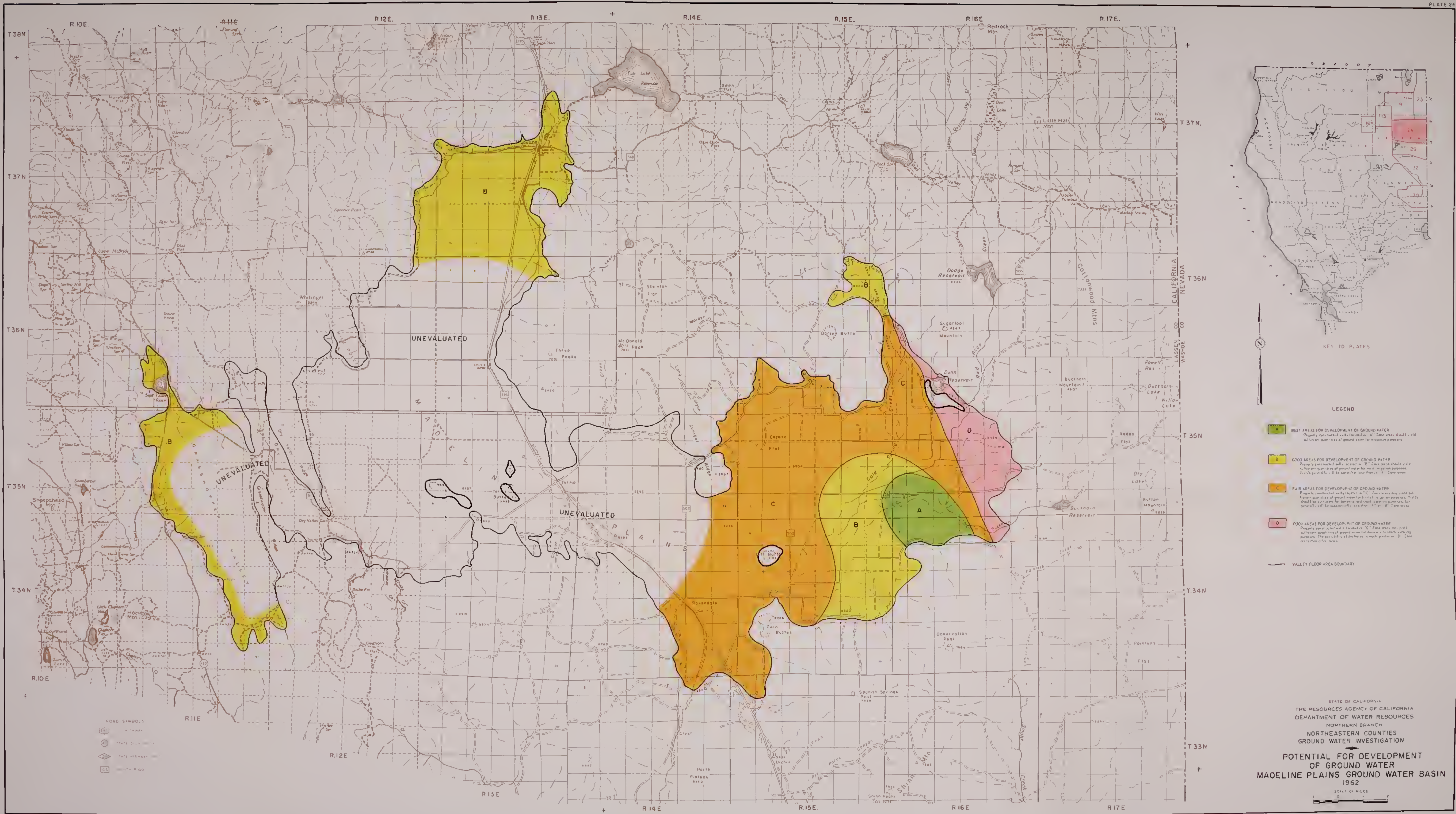


STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN AQUIFERS MADELINE PLAINS GROUND WATER BASIN

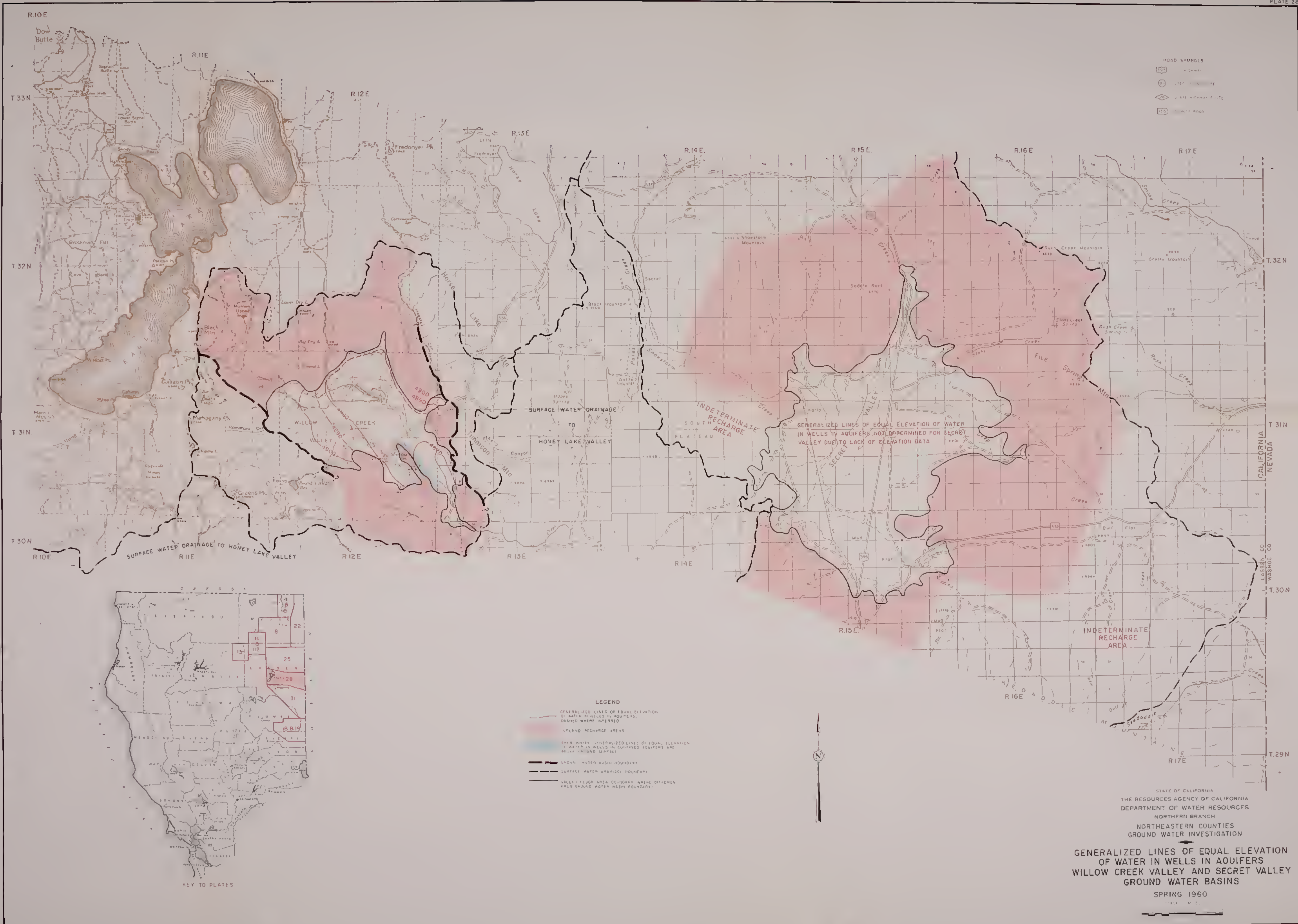
SPRING 1960

SCALE OF MILES
0


STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION
POTENTIAL FOR DEVELOPMENT
OF GROUND WATER
MADELINE PLAINS GROUND WATER BASIN
1962
SCALE OF MILES
LEGEND
A BEST AREAS FOR DEVELOPMENT OF GROUND WATER
B GOOD AREAS FOR DEVELOPMENT OF GROUND WATER
C FAIR AREAS FOR DEVELOPMENT OF GROUND WATER
D POOR AREAS FOR DEVELOPMENT OF GROUND WATER
VALLEY FLOOR AREA BOUNDARY
KEY TO PLATES
UNEVALUATED
UNEVALUATED
UNEVALUATED
MADELINE PLAINS
CALIFORNIA
NEVADA
LASSEN
WASHOE
R.10E.
R.11E.
R.12E.
R.13E.
R.14E.
R.15E.
R.16E.
R.17E.
T38N
T37N
T36N
T35N
T34N
T33N
Coyote Flat
Ravendale
Twin Buttes
Observation Peak
Dodge Reservoir
Dunn Reservoir
Buckhorn Reservoir
Sugarloaf Mountain
Dorsey Butte
Three Peaks
Little Hat Mtn
Redrock Mtn
Spanish Springs Peak
Sheepshead Mtn
ROAD SYMBOLS

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

AREAL GEOLOGY
WILLOW CREEK VALLEY AND SECRET VALLEY GROUND WATER BASINS
1962

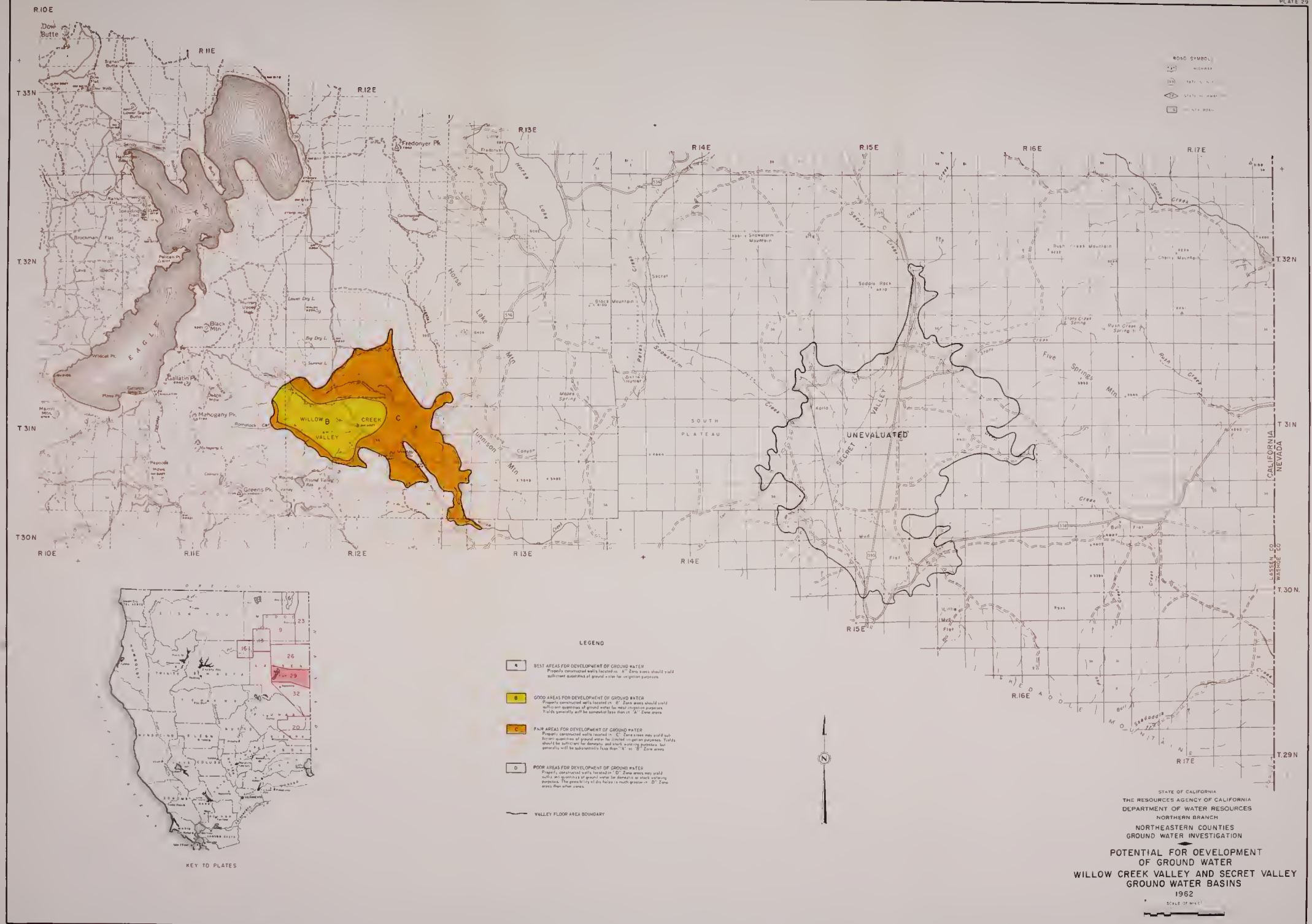


STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH

NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

GENERALIZED LINES OF EQUAL ELEVATION
OF WATER IN WELLS IN AQUIFERS
WILLOW CREEK VALLEY AND SECRET VALLEY
GROUND WATER BASINS

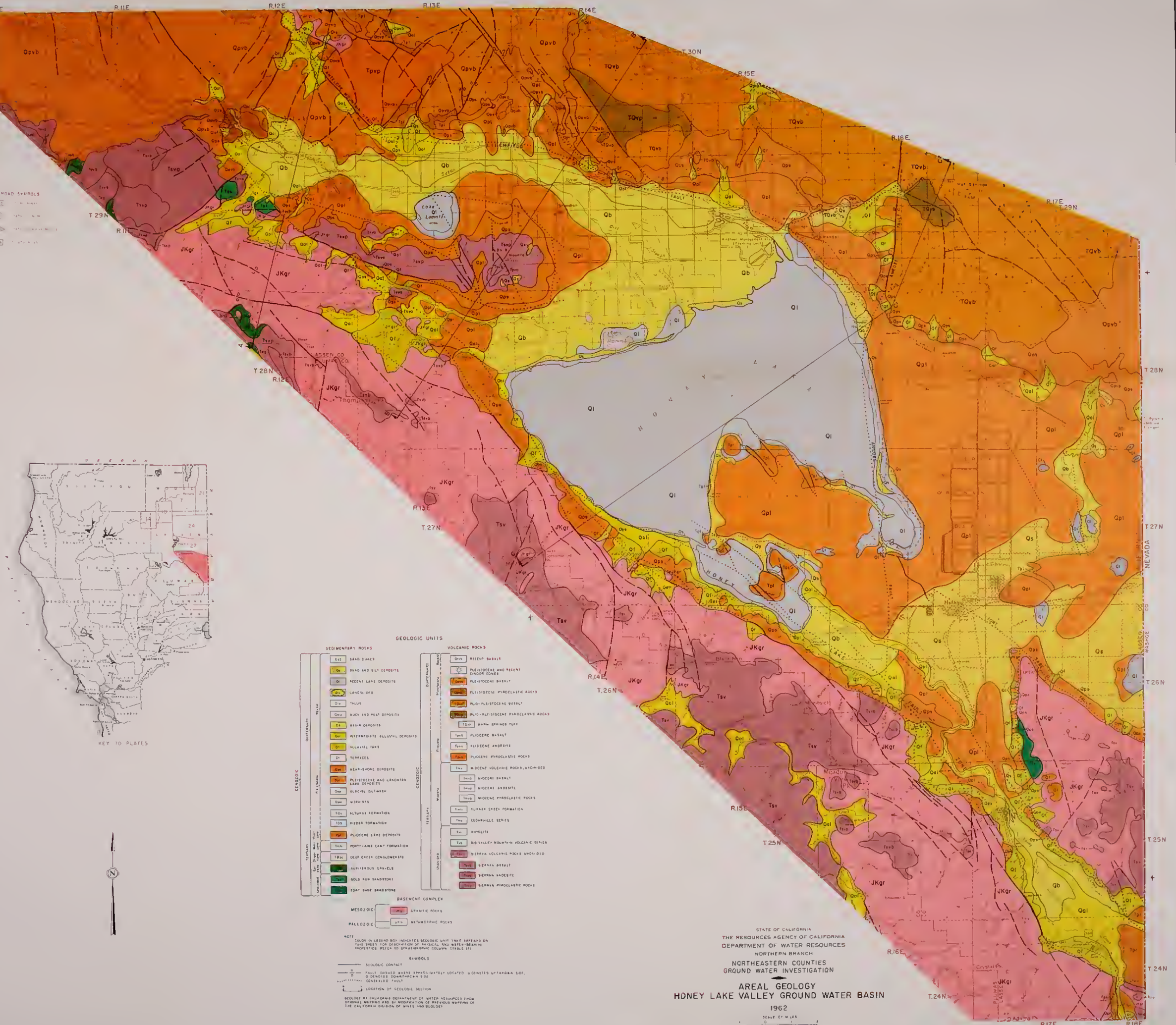
SPRING 1960



STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

POTENTIAL FOR DEVELOPMENT OF GROUND WATER WILLOW CREEK VALLEY AND SECRET VALLEY GROUND WATER BASINS

1962



GEOLOGIC UNITS

SEDIMENTARY ROCKS

CENOZOIC — QUATERNARY — Recent
- Qs — SAND DUNES
- Qa — SAND AND SILT DEPOSITS
- Ql — RECENT LAKE DEPOSITS
- Qls — LANDSLIDES
- Qt — TALUS
- Qm — MUCK AND PEAT DEPOSITS
- Qs — ALLUVIAL FANS
- Qal — INTERMONTANE ALLUVIAL DEPOSITS
- Qf — ALLUVIAL FANS
- Qt — TERRACES
- Qsw — NEAR-SHORE DEPOSITS
- Qpl — PLEISTOCENE AND LAHONTAN LAKE DEPOSITS
- Qge — GLACIAL OUTWASH
- Qmr — MORAINES

CENOZOIC — TERTIARY — Pliocene
- Tbs — BLTUSSI FORMATION
- Tdb — DIBBEN FORMATION
- Tpl — PLIOCENE LAKE DEPOSITS
- Tmh — MOUNTAINS CAMP FORMATION
- Tdc — DEEP CREEK CONGLOMERATE
- Tsv — AURIFEROUS GRAVELS
- Tgr — GOLD RUN SANDSTONE
- Tfs — FORT SAGE SANDSTONE

VOLCANIC ROCKS

CENOZOIC — QUATERNARY — Recent
- Qvb — RECENT BASALT

CENOZOIC — QUATERNARY — Pleistocene
- TQvb — PLEISTOCENE AND RECENT CINDER CONES
- Qpvb — PLEISTOCENE BASALT
- Qpvp — PLEISTOCENE PYROCLASTIC ROCKS

CENOZOIC — QUATERNARY — Plio-Pleistocene
- TQvp — PLIO-PLEISTOCENE PYROCLASTIC ROCKS

CENOZOIC — TERTIARY — Pliocene
- Tpvb — PLIOCENE BASALT
- Tpva — PLIOCENE ANDESITE
- Tpvp — PLIOCENE PYROCLASTIC ROCKS

CENOZOIC — TERTIARY — Miocene
- Tmv — MIOCENE VOLCANIC ROCKS, UNDIVIDED
- Tmvb — MIOCENE BASALT
- Tmva — MIOCENE ANDESITE
- Tmvp — MIOCENE PYROCLASTIC ROCKS
- Tmh — TUSCAN CREEK FORMATION
- Tmv — CEDARVILLE SERIES
- Tav — ANDESITE
- Tvb — BIG VALLEY MOUNTAIN VOLCANIC SERIES
- Tsvp — SIERRAN VOLCANIC ROCKS UNDIVIDED
- Tsvb — SIERRAN BASALT
- Tsva — SIERRAN ANDESITE
- Tsvp — SIERRAN PYROCLASTIC ROCKS

BASEMENT COMPLEX
- MESOZOIC — Jgr — GRANITIC ROCKS
- PALEOZOIC — pMv — METAMORPHIC ROCKS

NOTE
COLOR IN LEGEND BOX INDICATES GEOLOGIC UNIT THAT APPEARS ON THIS SHEET. FOR DESCRIPTION OF PHYSICAL AND WATER-BEARING PROPERTIES REFER TO STRATIGRAPHIC COLUMN (TABLE 1).

SYMBOLS
- GEOLOGIC CONTACT
- FAULT. DASHED WHERE APPROXIMATELY LOCATED. U DENOTES UPTHROWN SIDE, D DENOTES DOWNTHROWN SIDE
- CONCEALED FAULT
- LOCATION OF GEOLOGIC SECTION

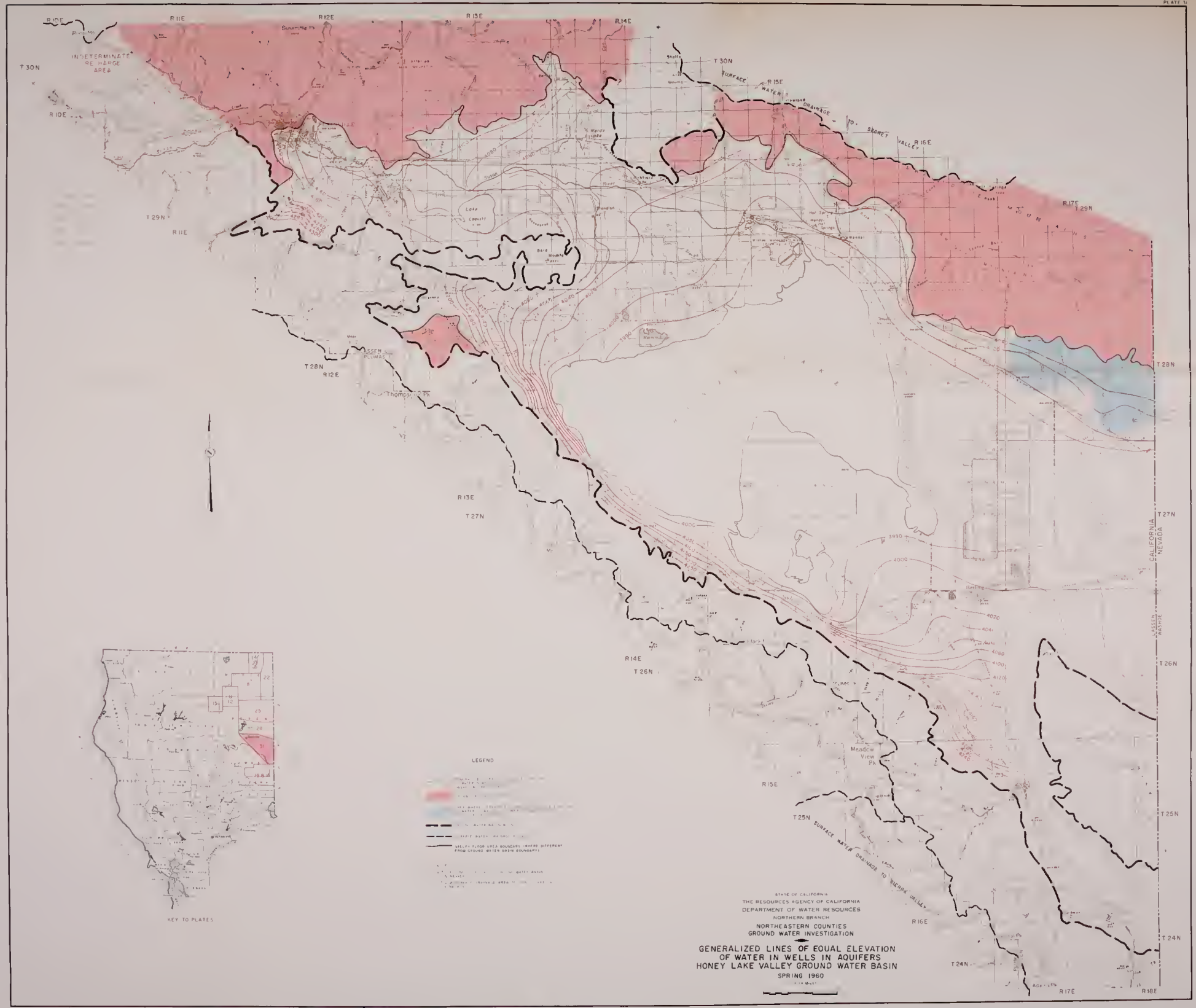
GEOLOGY BY CALIFORNIA DEPARTMENT OF WATER RESOURCES FROM ORIGINAL MAPPING AND BY MODIFICATION OF PREVIOUS MAPPING OF THE CALIFORNIA DIVISION OF MINES AND GEOLOGY

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

AREAL GEOLOGY
HONEY LAKE VALLEY GROUND WATER BASIN

1962

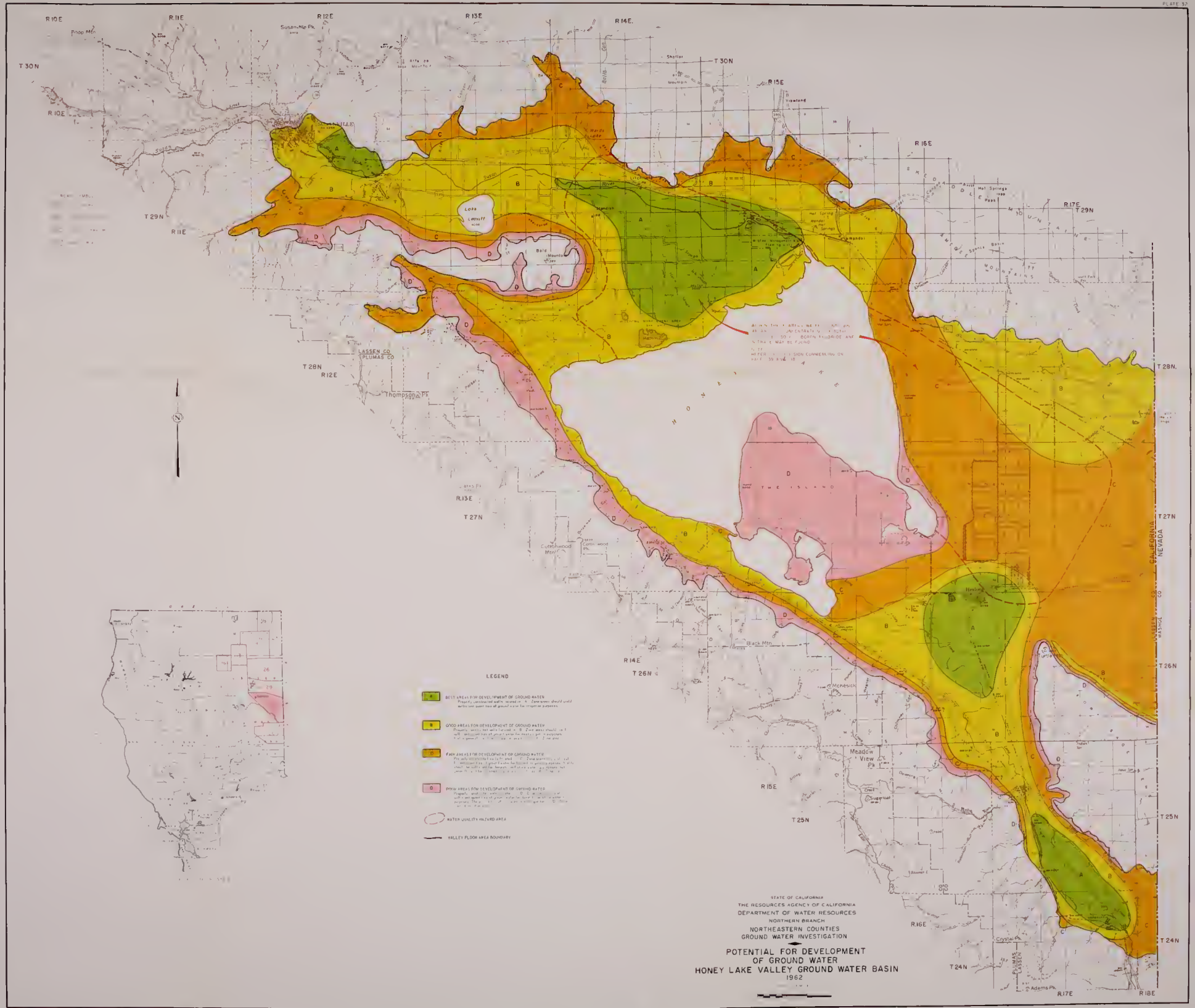
SCALE OF MILES



STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

GENERALIZED LINES OF EQUAL ELEVATION OF WATER IN WELLS IN AQUIFERS HONEY LAKE VALLEY GROUND WATER BASIN

SPRING 1960



STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
NORTHERN BRANCH
NORTHEASTERN COUNTIES
GROUND WATER INVESTIGATION

POTENTIAL FOR DEVELOPMENT OF GROUND WATER HONEY LAKE VALLEY GROUND WATER BASIN 1962